PUBLIC PROCUREMENT TO MEET SUSTAINABLE POLICY GOALS IN MALAYSIA'S PUBLIC SECTOR: A PRELIMINARY STUDY

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ABSTRACT

Even though the importance of sustainable public procurement has been acknowledged in most of the developed countries, developing countries such as Malaysia are still at the infancy level. Current studies focused on the challenges and determinants of implementing sustainable public procurement in Malaysia. However, minimal research available on the actual implementation in the public sector organisations in Malaysia. This study examines how far the sustainability criteria are incorporated in Malaysia's public procurement using secondary data. This was done through an extensive document analysis in procurement notices advertised in Malaysia's e-*Perolehan* system over three years from 2018 – 2020. The results show that only 9% of the paper procurement notices and 15% of ICT procurement notices are sustainable with environmental criteria embedded in the specifications documents prepared by the procurers. Besides, technology and development sectors are identified to be committed to incorporating sustainability in most of their procurement notices.

Keywords: Sustainable public procurement, green public procurement, government's green procurement, Malaysia, public sector organisations

1.0 Introduction

Substantially, public procurement benefited the government, economy and community through supply innovations, local market or social well-being of the population by reducing environmental harm. According to OECD (2017), public procurement representing at least 12% of the nation's GDP in OECD countries. Malaysia's public procurement regime includes work, supply, and service and can be conducted through a few modes: direct purchase, quotation, or tender process. On the other hand, The United Nation agreed to Sustainable Development Goals (SDGs) to address poverty and conservation of earth for peace and prosperity (United Nations, 2019). One of the contributions to the achievement of the SDGs is possible by enhancing sustainable public procurement (SPP) practices.

In Malaysia, SDGs targets and indicators are closely associated with the 11th Malaysia Plan (11MP) from 2016 – 2020, where Malaysia committed to pursue green growth and adopt sustainable consumption and production concept (EPU, 2015). By implementing sustainable procurement as the largest single buyer, the country as a whole will benefit economically without harming the environment and affecting the society. SPP was defined by Brammer and Walker (2011) as procurement decisions that comprise social concern, economic growth and environmental impacts undertaken by public bodies or organisations. As most countries started to initiate sustainable development in their national policy objectives, academic research on SPP has been growing too since 2010 with a concentration on managerial management, process oriented as well as total practice and impact of SPP (Cheng et al., 2018).

DOI: 10.9756/INT-JECSE/V14I3.863

Malaysia started to develop sustainability effort through one of the dimensions which are environment. Kahlenborn, Mansor and Adham (2014) released Government Green Procurement (GGP) guidelines to improve the efficiency of public procurement by utilizing public market influence to transform Malaysia's economy into a green economy and reducing environmental harm. The initiation of GGP was reported by the Ministry of Economic Affairs (2018) with an accumulated value of RM286.3 million in 2017 over 20 products and services upon implementation by all public sector organisations. According to the OECD (2019), at least 29% of government expenditure is spent on public procurement, proving that the government is the single biggest spender to achieve national policy objectives. When GGP guidelines were first introduced by Economic Planning Unit (EPU) in 2015, priority in procurement award was given to environmentally-friendly products and services that comply with green technology standards. However, preference for environmentally-friendly products and services within the public sector can hardly be implemented due to the lack of implementation guidelines available (Kahlenborn et al., 2014).

Despite few other initiatives of SPP especially in construction (Bidin et al., 2020; Bohari et al., 2017), manufacturing (Chan et al., 2018) and SMEs sectors (Beleya et al., 2019), no publication has yet to explore the state of sustainability criteria through public procurement implementation within Malaysia's public sector organisations. Hence, this study aims to investigate the sustainability criteria implementation through e-*Perolehan* in Malaysia's public sector organisations. This study will focus on two (2) highly purchased product groups in the public organisation: Paper and ICT through secondary data study. The results will contribute to new knowledge about sustainability criteria in Malaysia's public procurement. Besides, this study can help policymakers to understand the current sustainability criteria and better develop inclusivity in the future. To realize this objective, the research question to be answered in this study is "How far has the sustainability criteria is being included in procurement notices through Malaysia's e-*Perolehan*?"

The rest of this paper is structured as follows. Section 2 provides a brief introduction of the Government Green Procurement and e-*Perolehan* system in Malaysia. Section 3 describes the method used to conduct the study. Section 4 explains the results and findings of this study. Section 5 presents the discussion and finally, Section 6 puts forward the conclusions, limitations and recommendations of the study.

2.0 Towards Sustainability In Malaysia's Public Procurement

2.1 Malaysia's Government Green Procurement (GGP)

Similar to Green Public Procurement (GPP), Malaysia through (Kahlenborn et al., 2014) has released its own Government Green Procurement (GGP) guidelines to improve the efficiency of public procurement by utilizing public market influence to transform Malaysia's economy into a green economy. GGP in Malaysia is using the same concept as GPP term that has been used globally. According to Kahlenborn, Mansor and Adham (2014), GGP is defined as the purchase of products, services or work by public organisations that considers environmental criteria to protect the natural environment and resources and at the same time reduces negative impacts on the society. This effort will enhance public purchasing productivity and manage market resources to drive the nation towards a green economy. The act of complementing environment criteria into public procurement leads to a lot of benefits such as driving product innovation for a better quality product, increasing market competitiveness, providing long-term savings and encouraging a healthier working condition.

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Malaysia has also taken into account GGP in the 11th Malaysia Plan (11MP) from 2016 – 2020 through its fifth pillar which is to achieve at least 20% of GGP on selected green products and services. To achieve this, Malaysia has introduced two (2) phases of GGP: Short-Term Action Plan (STAP) in the year 2014 – 2015 and Long-Term Action Plan (LTAP) by targeting at least 20% of procurement to be green by the year 2020, 50% green by 2025 and by 2030, 100% of procurement to be green (Economic Planning Unit, 2016).

As a start, Malaysia has enlisted specific criteria for green product or services selections such as availability of the standards of certain products or services, the readiness of local suppliers, significant environmental impact and the budget concern to purchase and maintain the product and services. Hence, for a start, Malaysia began to instigate GGP in the year 2014 – 2016 through five (5) pioneer organisations. The implementation commencing on six product groups and services were carefully chosen, namely cleaning services, ICT equipment, energy efficiency indoor lighting, paper, paints/ coating and fiber cement (Kahlenborn et al., 2014).

Even though the importance of green practices has been acknowledged in most developed countries, developing countries such as Malaysia and other Southeast Asian countries are just at their starting point (Bohari et al., 2017). In Malaysia's context, GGP has been researched in various sectors such as construction (Bidin et al., 2020; Hassan et al., 2018), food (Beleya et al., 2019; Tan et al., 2019), furniture (Chan et al., 2018) and transportation (Alagesan & Daud, 2019). Most of these previous literature is related to the empirical study of GGP particularly in their sector. The current study also explored the challenges and determinants upon implementing sustainability criteria in the procurement process. Both Chan *et al.* (2018) and Bidin *et al.* (2020) found that one of the challenges to implementing GGP is the perception of higher cost in the process and the product itself. Besides, lack of awareness and knowledge about GGP is another challenge identified by (McMurray et al., 2014). In addition, Bohari *et al.* (2017) suggested that continuous training through the capacity building will reduce knowledge gaps within the procurers to overcome the challenges.

2.2 e-*Perolehan* System

The use of an internet-based system to accomplish elements of the procurement process, such as search, sourcing, negotiation, ordering, reception, and post-purchase review, is referred to as e-Procurement (Croom & Brandon-Jones, 2005). According to Thai (2001), implementing e-Procurement activities should be viewed as an attempt to improve procurement goals, which often include quality, timeliness, and cost and minimising commercial, financial, and technical risks, increasing competition, and maintaining integrity.

Malaysia has its e-Procurement flagship known as e-*Perolehan*, enabling suppliers to offer products and services to the government through a seamless online system. Electronic procurement, refers to internet-based applications that execute various procurement processes such as sourcing, negotiation, ordering, receipt, and post-purchase review (Mohamed Elias et al., 2012). The implementation of e-*Perolehan* benefited all parties in terms of accomplishing competitiveness, reducing corruptions among procurers and suppliers, increasing process efficiency as well as an economical system with lower costs but still accessible at any time (Kassim & Hussin, 2013; Mohd Nawi et al., 2016; Nawi et al., 2017). Furthermore, the e-*Perolehan* system also includes payment process that enables both parties to track all transaction processes (Ministry of Finance, 2018a). Hence, this will increase the integrity and reduce any possible means of the unethical act within the process. In a way, the system provides convenience to both public sector organisations and the suppliers thanks to the simplified approach and less hassle of tender participation.

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Nawi *et al.* (2017) in their study earlier highlighted a few advantages of the e-*Perolehan* system, such as cost reduction and improved efficiency with the aid of internet-based information and communication technology. On top of that, Ngatman and H.S.S. Alderei and H. Musa (2020) stressed that the challenges faced upon implementing e-*Perolehan* are lack of ICT infrastructures, lack of knowledge and technical skills, resources constraint and resistance from implementer. Nevertheless, Malaysia has fully implement e-*Perolehan* effective from July 1st 2018 (Kamaruddin & Noor, 2017) which involves five (5) key modules namely contract management, supplier selection, fulfillment, procurement plan and supplier management (Ministry of Finance, 2018b). The main page of e-*Perolehan* website is shown in **Figure 1**.

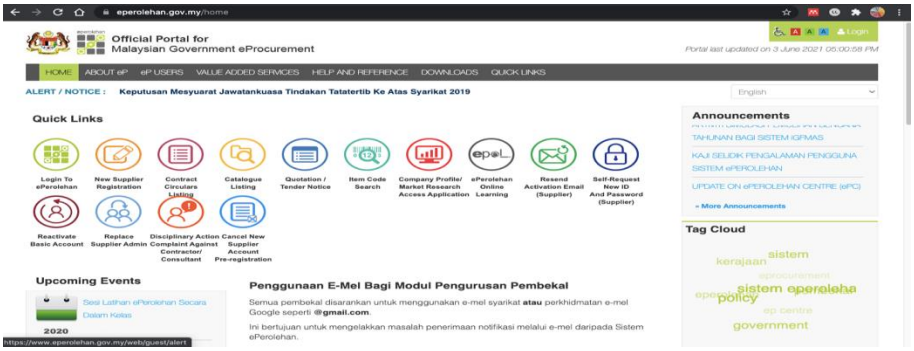

Figure 1: Malaysia's e-*Perolehan* portal

3.0 Methodology

An early exploration through secondary data regarding procurement notices was conducted in this study. This was purposely executed to observe their procurement routine and documents advertised to all potential participating suppliers. Documents investigation was done through the online website of e-*Perolehan*, where all the information is available and transparent to be viewed by anyone (Ministry of Finance, 2020). Generally, based on Malaysia's public procurement procedures, procurement notices can be advertised at a minimum of 3 days or as long as 60 days, depending on the potential participation of tenderers. Typically, the more complicated the project is, the longer time will be given to obtain as many tenderer participations as possible. A procurement notice is not only restricted within sectors but by any organisation with its own annual allocated budget of the year. Since thousands of procurement notices are available on the website, it is wise to restrict the keyword of searching to only certain products or services related. Basically, for a procurement notice to be considered sustainable, suppliers must integrate either one of the sustainability dimension criteria in their offer (environmental, economic or social). Upon evaluation, these criteria will bring weightage inclusive of the price, quality, training, logistic or life cycle cost.

In this preliminary study, only completed procurement notices were accessed through the e-*Perolehan* website for three (3) years from 2018 – 2020. The restriction also applies to two (2) commonly purchased products in the public sector which are ICT related products/ services and papers supply. These two (2) products are based on the list available in Malaysia's Government Green Procurement (GGP) Short-Term Action Plan (STAP) (Kahlenborn et al., 2014). These two (2) product group was also ranked as top two priority product categories in participating national governments based on a study regarding SPP implementations in National

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Governments by UNEP (2017). The same study by UNEP also acknowledged that EU countries conquered 44% of SPP implementations globally while Asian countries only at 22%. Besides, this study selected paper and ICT product group because purchasing these items can be considered a necessity for work purposes in all organisations (Ministry of Finance Mongolian & United Nations Environment, 2017).

The search process in the e-*Perolehan* website was restricted to "Awarded" which means the complete process of a tender offer. Likewise, for the purpose of a precise and fast search, Procurement Title search is restricted to "ICT" and "Paper/ *Kertas*" only (**Figure 2**).

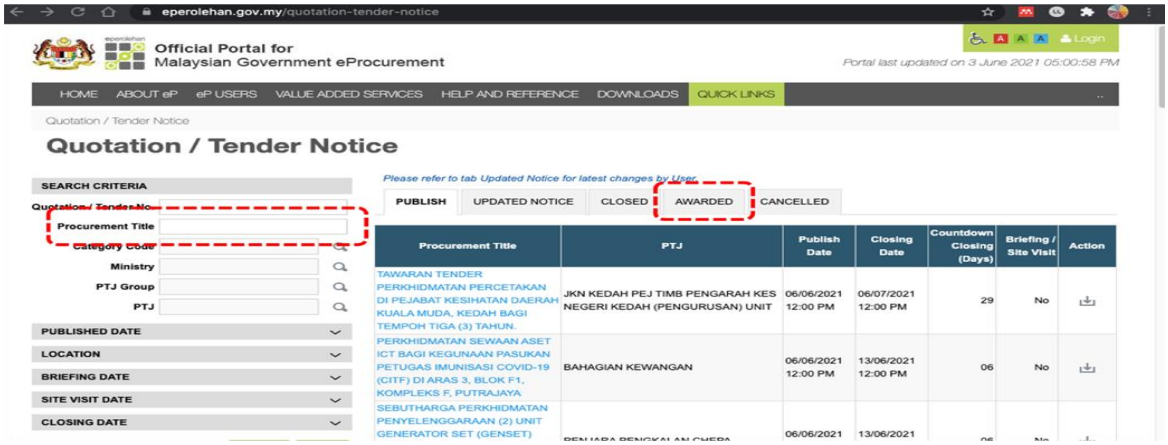

Figure 2: Criteria selection through e-*Perolehan* portal

All the documentations are transparent in the e-*Perolehan* database and can be accessed by anyone. The primary documents analysed were the procurement call notice title, the notice's brief description, and the specifications documents prepared by the procurers or organisations offering the award. Finally, once all of the documents are compiled, sustainability criteria for each procurement notices specifications are identified through all three documents. The documents were also classified by sector of the ministry, location as well as procurement year. A complete process flow is illustrated in **Figure 3**.

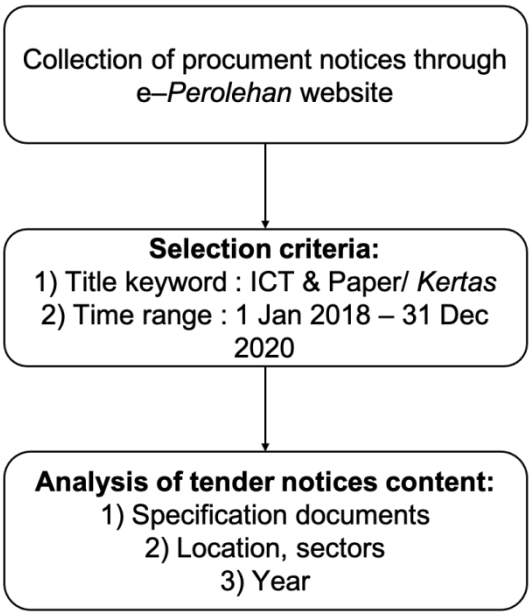

Figure 3: Criteria selection steps

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On the other hand, a summary of sustainability criteria by global organisations are specified in **Table 1 and 2** below:

Table 1: Sustainability criteria for Paper product group

Dimension	Criteria	Source
Environmental	i. post-consumer recovered paper fibers (recycled paper) ii. paper-based on legally or sustainably harvested virgin fiber iii. manufacturing processes characterized by low energy consumption and emissions iv. avoidance of certain substances in paper production and bleaching	Kahlenborn, Mansor and Adham (2014)
	i. content of recycled pulp, pulp certified by forest certification system ii. packaging and stowage is to be as simple as possible and take into account ease of recycling and reduced environmental impact upon disposal	The Government and Incorporated Administrative Agencies Japan (2016)
	i. paper is a blend of virgin and recycled fibers ii. virgin pulp content has been certified as legally harvested from a sustainably managed forest/ timber source iii. transport impacts throughout the supply chain are minimised iv. paper packaging is recyclable v. paper is certified as eco-label vi. uses renewable energy sources	The State of Queensland (2018)
	i. paper produced from sustainable fiber sources, sustainably managed forests ii. recycled paper, post-consumer recycling iii. consuming lower amounts of energy and water iv. chlorine substances free v. environmentally-friendly packaging	Dorjnyambuu and Nyamsuren (2015)
Social	i. active participation in the social and economic development of local communities and key stakeholders	The State of Queensland (2018)
	i. production of paper according to international labor standards and human rights laws: Fair employment practices in paper supply chain, fair	Dorjnyambuu and Nyamsuren (2015)

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	wages, workforce equality, diversity, avoidance of bonded labor, promoting workforce welfare ii. local sustainability by building and maintaining healthy, strong communities, supporting social inclusion and enhancing the well-being of local residents by generating local employment. iii. technical quality, fit for use with standard copy machinery	
Economy	i. multipurpose copy paper suitable for copy machines, laser printers, fax-machines, ink-jet printers and 2-sided copying can save costs ii. economic contribution of paper supply chain to national GDP iii. job creation of paper supply chain in a country and opportunities for SMEs iv. re-investing in operations of paper supply chain	Dorjnyambuu and Nyamsuren (2015)

Table 2: Sustainability criteria for ICT product group

Dimension	Criteria	Source
Environmental	i. ICT equipment at least Energy Star 5.2 & fulfills EPEAT (silver) criteria ii. energy-efficient models iii. products with a restricted amount of hazardous constituents iv. design for recycling, longer life and promote take back options v. safe disposal (recycling, re-using) of final products. i. products must be registered and certified to EPEAT silver standard ii. must meet additional packaging requirements: multi-packs for bulk orders – removal of excess CD/DVDs and documents iii. provide an end-of-life takeback guarantee and must demonstrate that there are arrangements in place to re-use, recycle or dispose of waste	Kahlenborn, Mansor and Adham (2014) Queensland Government (2018)
Social	i. Production and supply chain according to international labor standards and human rights laws ii. Local sustainability	(Ministry of Finance Mongolian & United Nations Environment, 2017)

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	iii. Technical quality i. Promoting fair treatment, non-discrimination, and equal opportunity of workers ii. Establish, maintain and improve worker-management relationship iii. Promoting compliance with national employment and labor laws iv. Protecting workers - including vulnerable categories such as children, migrant workers, workers engaged by third parties, and workers in the client's supply chain v. Promoting safe and healthy working conditions, and the health of workers vi. Avoiding the use of forced labor and child labor	(Ministry of Finance and Economic Development Mauritius, 2013)

4.0 Results

4.1 Overall sample distribution

This section will present the overall sample distribution extracted from e-*Perolehan* system. Prior to that, all of the organisations are clustered into similar sectors for easy understanding. A total of 1,237 procurement notices were collected from e-*Perolehan* tender call in 2018 – 2020 for both Paper and ICT product group. Number of overall samples extracted for both product groups is shown in **Figure 4**.

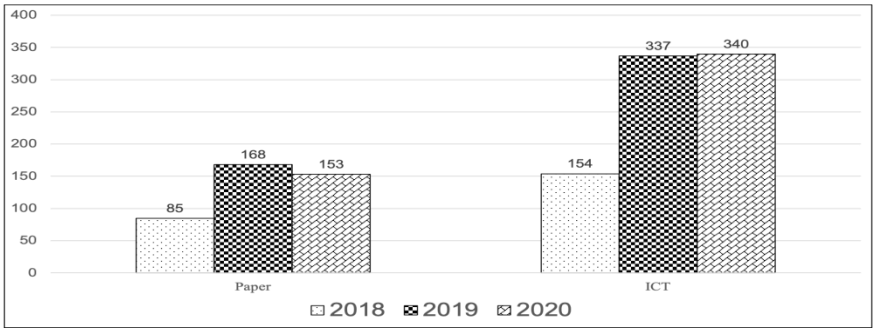

Figure 4: No. of procurement notices according to year

Based on the findings too, the number of procurement notices is increasing from 2018 for the ICT product group. However, for the paper product group, the number increased in 2019 and reduced by 15 notices in 2020. Overall, it can be seen that procurement notices for the ICT product group are doubled the paper product. This might due to lesser paper required in the times of pandemic starting up in the early year of 2020. A complete distribution of procurement notices according to the organisation sectors, product group and year is presented in **Table 3**.

Table 3: Distribution of procurement notices

Product group/ Year/ Sector	**Paper**				**ICT**			
	2018	**2019**	**2020**	**Total**	**2018**	**2019**	**2020**	**Total**
Administrative	8	14	14	**36**	27	56	29	**112**
Social	3	6	6	**15**	30	67	70	**167**

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Security	14	23	25	**62**	3	21	25	**49**
Health	22	50	35	**107**	15	58	43	**116**
Trade	1	0	0	**1**	3	5	5	**13**
Energy & Agriculture	3	5	5	**13**	21	34	30	**85**
Development	6	13	6	**25**	16	14	27	**57**
Education	24	54	58	**136**	29	71	99	**199**
Technology	2	2	2	**6**	4	7	5	**16**
Economy	2	1	2	**5**	6	4	7	**17**
TOTAL	**85**	**168**	**153**	**406**	**154**	**337**	**340**	**831**

4.2 Distribution of sustainability criteria

The list of completed procurement notices was assessed and organised according to the sustainability criteria in the documents, year and organisation sectors. In this study, whether a procurement notice is classified as sustainable or not is based on one of the sustainable criteria listed in **Figure 5**. All these criteria were based on similar definitions such as green public procurement, responsible procurement, ethical procurement, socially responsible procurement, eco-label/ eco-product, environmentally friendly procurement and recycle/ reused (Haitao Yin & Schmeidler, 2012; Knebel et al., 2019; Neto, 2020). Besides, these criteria are basically a summary of the sustainability criteria according to product group as explained in Table 1 and 2 earlier.

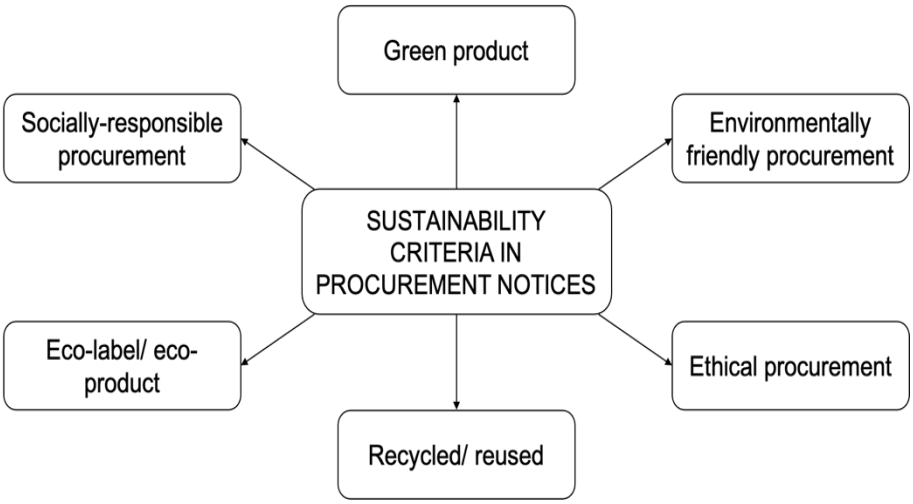

Figure 5: Green criteria in procurement notices

4.3 Distribution of product group

a) Paper

Keyword "paper" upon searching the e-*perolehan* database yields 406 entries. The findings obtained procurement for A4 papers and including paper sub-product such as colored paper, computer-form paper, target paper, exam supply paper, and even office stationeries. Most of the sub-products were grouped in the same procurement notice to avoid separating into smaller procurement notices in the same year, which is against the financial and procurement procedures. However, out of 406 notices, procurement notices for "paper" only yield 36 notices with sustainability criteria embedded in specifications documents. Six (6) notices in the year 2018, 17 notices in 2019 and drop to 13 notices in 2020. Sustainability criteria were identified either in the title of the

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notice or in the specification requirement. Out of 36, only half of the notice's specifications did mentioned clearly "reuse/ recycle/ environmentally friendly," while the rest of the specifications are just requesting for a specific brand that has already included sustainability dimensions in their product. On the other hand, the sustainability criteria for paper procurement notices only highlighted "reuse/ recycle/ environmentally friendly" which refers explicitly to the environmental dimension. Unfortunately, the other two (2) sustainability dimensions (social and economy) were not located either in the notice's title or specifications. The overall summary of paper procurement notices from the year 2018 – 2020 is shown in **Figure 6**.

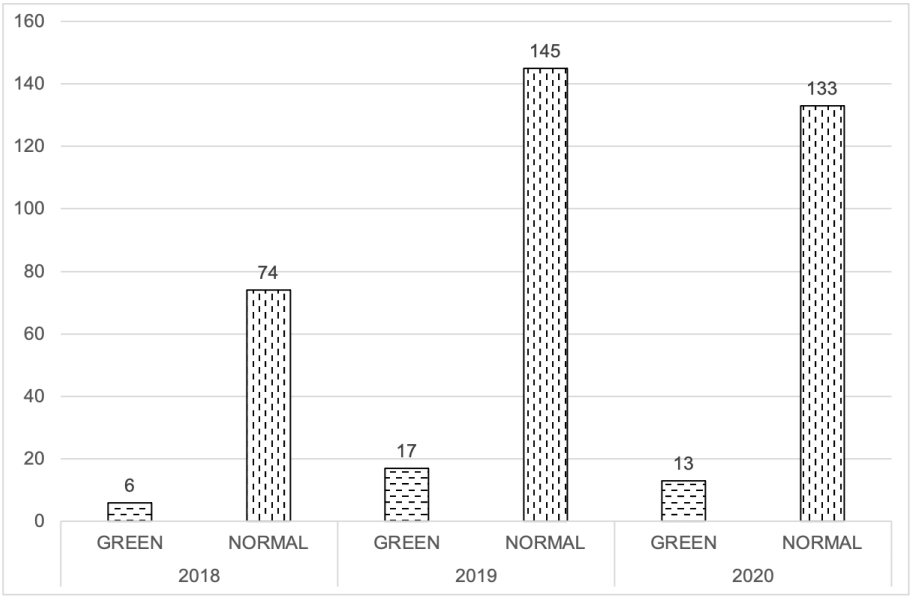

Figure 6: Number of Paper procurement notices for three (3) years (2018 – 2020)

Additionally, only 27 organisations participated in advertising "green" procurement notices instead of "sustainable" procurement notices for 2018 – 2020. The lower number of notices might be due to the Central Contract Circular by MOF since MOF has appointed a dedicated supplier to supply A4 papers to all public sector organisation for three (3) years of the contract (2016 – 2019). In this case, an exception will be given to any organisation that only requires purchasing less than 50 rims but subject to special approval from MOF.

Last but not least, a comparison between sectors' implementation through SPP is shown in **Figure 7**. In the findings, there is no consistency in SPP implementation in all organisation sectors. It was apparent that all the organisations only consider one of the sustainability dimension (environmental) due to Malaysia's guideline is totally on "green procurement". The graph also shows that administrative, trade development and education sectors' implementation of SPP is very low throughout the three years of study. While social, energy & agriculture, and technology sectors maintained their SPP effort throughout the years. To conclude, overall implementation of sustainability inclusion criteria in paper product procurement notices for 2018 – 2020 only achieved 9% from 406 notices. Nevertheless, even though the percentage is low, the increasing number proves that Malaysia is currently on the right path towards sustainability.

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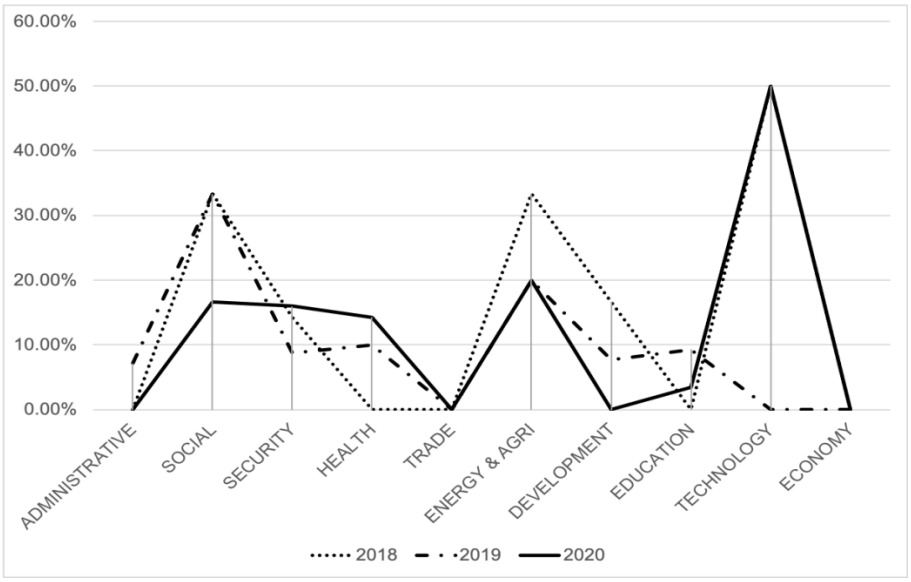

Figure 7: Overall percentage of sustainable public procurement notices for Paper

b) ICT

Various products and services are related to ICT procurement were found in the database such as the procurement of ICT equipment (PC, laptop, printer and server), maintenance services of existing equipment and the supply of consumables for ICT equipment. Based on search criteria selected earlier, the results managed to obtain a total of 831 procurement notices from three (3) years (2018 – 2020). All specifications in each procurement notices were examined to identify the inclusivity of sustainable criteria. The summary of this finding is shown in **Figure 8** where the numbers of sustainable public procurement notices for ICT products can be seen as a consistently increasing trend from the year 2018 – 2020.

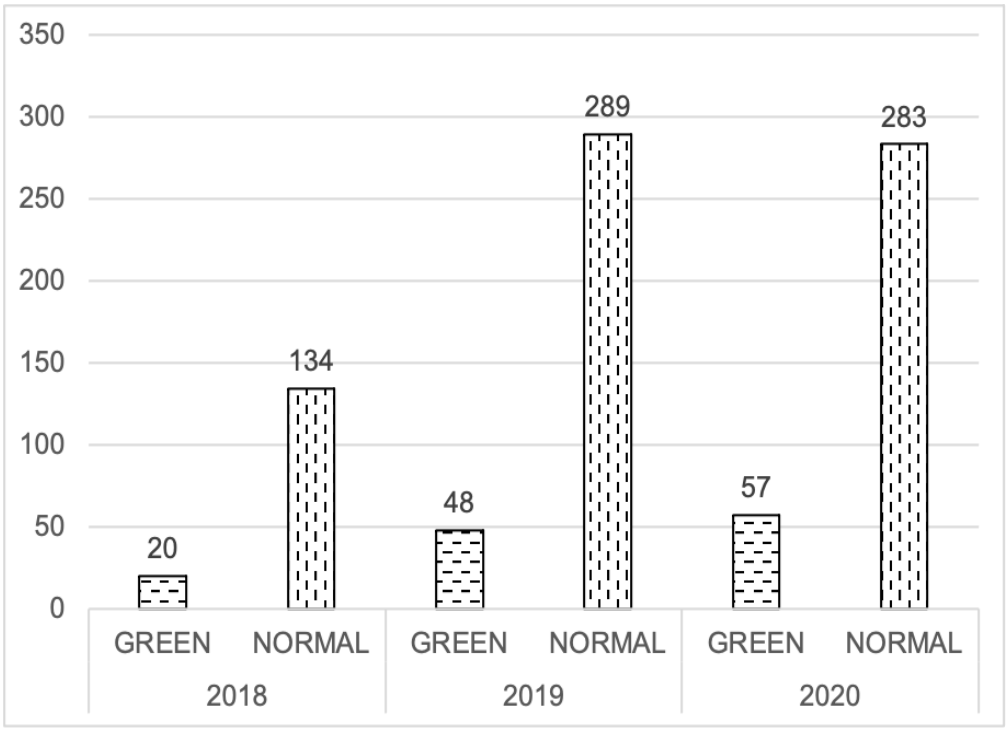

Figure 8: Number of ICT procurement notices for three (3) years (2018 – 2020)

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After a thorough examination of all specifications advertised by the organisations, it was discovered that a total of 125 procurement notices (15% of total ICT procurement) includes sustainability criteria such as green, environmentally friendly product, recycled and reused. Furthermore, the number of sustainability criteria embedded into the tender specifications can also be seen increasing from the year 2018 with only 20 procurement notices up to 57 SPP notices in the year 2020. Not only that, it is worth noted that the sustainability criteria are also made mandatory for the supplier to comply upon submitting the tender. Therefore, even though most of the inclusivity only considers the environmental dimension, but the effort to include the criteria in their procurement notices can be applauded. Finally, **Figure 9** shows the comparison between sectors' implementation through sustainable public procurement.

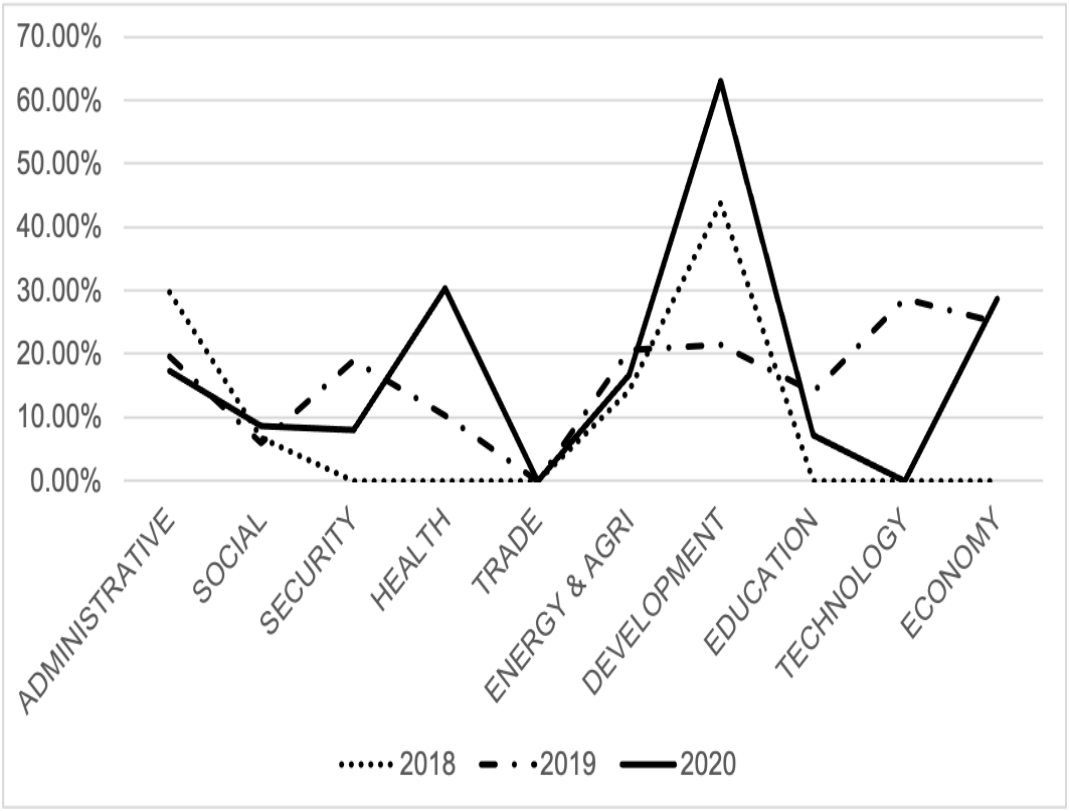

Figure 9: Overall percentage of sustainable public procurement notices for ICT

Unlike paper products, sustainability criteria inclusivity for the ICT product group seems to be on the right path for health, development and economic sector. Nevertheless, the implementation of SPP in the ICT product group is overall higher than paper in other sectors. On top of that, just like the paper product group, the trade sector still has yet to implement sustainability criteria in its procurement notices. Furthermore, ICT products tend to gain more sustainability attention and popularity from the organisations and support from suppliers. This might be due to the well-known sustainable ICT products available in the market at an affordable price and reasonable stock availability.

5.0 Discussions

This preliminary study aims to investigate the sustainability criteria implementation through e-*Perolehan* system in Malaysia's public sector organisations. EPU through GGP guidelines listed six (6) product groups and services. In predicting the actual implementation of sustainability criteria by public sector organisations, this

DOI: 10.9756/INT-JECSE/V14I3.863

study has considered two (2) most purchased product groups by national governments. Currently, over 50,000 procurement notices are being advertised on the e-*Perolehan* website for the year ranging from 2018 until the current date. Procurement offer through the e-*Perolehan* system has been associated with time and cost savings and improved productivity (Shu Hui et al., 2011).

As a result, this study found that the search results for Paper product yields 406 awarded procurement notices from 2018 – 2020, while 831 procurement notices for ICT products. The number of procurement notices is gradually increasing throughout the years for both products. In terms of sustainability criteria, purchasing sustainable ICT products generated furnished a higher percentage than paper products. In 2018, ICT products gained at least 13% of the procurement were green, increased to 14% in 2019 and 17% in 2020. This value is similar to what was found by (Welz & Stuermer, 2020) in Switzerland, where they achieved 15% of sustainable criteria for 2018 and 2019 under the same product group (ICT hardware). In their finding too, Switzerland organisations included two (2) sustainability criteria which are environmental and social dimensions. Nevertheless, this proves that Malaysia is on the right track and comparable to other developed countries. A higher percentage can easily be achieved with awareness sharing through a better formulation of training requirements (Liu, Shi, et al., 2019).

However, the sustainability percentage for Paper products is not as promising as ICT. In 2018, only 7% of the procurement notices are sustainable, while 2019 showed the figure to increase to 10% and then reduced to only 9% in the year 2020. The number of notices is low with an average of only 12 procurement notices are green every year, out of 135 notices. Hence, more effort should be taken ahead to encourage the organisations to participate and support the sustainability industry, especially in paper product group.

One way to increase SPP implementation regardless of product groups is by building the requisite capabilities and training mechanisms (Liu, Shi, et al., 2019; Mwesiumo et al., 2019). In addition, the continuous knowledge-building process and more information on the sustainability framework will be able to assist the decision-makers and procurement officers in incorporating sustainability criteria in all of the procurement notices. However, it is also vital to establish a strong sustainability market guarantee to the suppliers prior to the advertisement offer (Lenderink et al., 2019; Sahin-Ipek & Karadag, 2017). Furthermore, introducing a reward system could also raise the visibility of sustainable adaptation in Malaysia's public procurement (Bidin et al., 2020).

Sustainability criteria in public procurement should not be restricted to daily necessities product groups but to consider a broader approach. For example, one of the efforts is through a sustainable food supply procurement related to organic food products, reusable and environmentally friendly packaging, green vehicles used for logistics, and supporting local and seasonal production (Simanovska et al., 2021). Similarly for sustainable furniture procurement, sustainability criteria to be considered are such as not using prohibited leather substances, sustainably sourced timber and wood product, low-emission surface coating and minimizing hazards during manufacturing and delivering the furniture (Chan et al., 2018; UNEP, 2008). Besides, a few studies have explored SPP practices in other products and services group such as road marking (Burghardt & Pashkevich, 2021), transportation (Aldenius & Khan, 2017; Bjerkan et al., 2019; Fauske & Schrader, 2017), textiles (Dodd & Gama Caldas, 2017) and hotel services (Giessen, 2018).

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6.0 Conclusions and Recommendations

This preliminary study aims to investigate the sustainability criteria implementation through e-*Perolehan* in Malaysia's public sector organisations. Sustainable public procurement implementation is crucial to achieve SDGs targets and ensure better considerations towards the society, economy and environment. This study extracted 1,237 procurement notices for two (2) product groups which are Paper and ICT. However, based on the investigation of the documents, all of the sustainable procurement notices only include environmental dimension and none of the notices includes society or economic dimension. Due to Malaysia's current guidelines on sustainable public procurement, this might merely focus on the environmental dimension through the Government Green Procurement guideline.

Nevertheless, to revisit the research question posed earlier, the finding shows that only 9% of the paper procurement notices and 15% of the ICT procurement notices are sustainable. This finding can conclude that SPP is not implemented widely enough in sustainable public procurement framework services. However, in terms of GGP, Malaysia is on the right track to pave the road to 100% of green procurement in the near future. Still, achieving sustainability through public procurement at 15% for ICT criteria and 9% for the paper product are still far from the nation's target which is 20%.

Hence, further research needs to be done to obtain the exact figure of sustainability inclusion in procurement notices in all products and services. Besides, these two (2) product groups are among the most frequent office purchases made by any organisation. Therefore, it is crucial to encourage SPP practices in the procurement process to comply with the SDGs framework. Furthermore, to ensure Malaysia will achieve 100% sustainable procurement by the year 2030, all organisations must equip their procurement officers with more sustainable knowledge as part of the capacity building (Adjei-Bamfo et al., 2019). Besides, central agencies should encourage all stakeholders to comply with sustainability criteria in their organisations (Khamis et al., 2020; Liu, Liu, et al., 2019). In a way, the effort of reducing paper waste could potentially reduce the consumption of other stationery resources, such as toner cartridges hence supporting the life cycle of the product (Yeow et al., 2011).

However, this study should not be generalised due to a few limitations. Firstly, this study only focuses on two (2) product groups which are the Paper and ICT product group due to the confined research time and resources. Besides, this study only extracted procurement notices for the past three (3) years. This is because data availability in the e-*Perolehan* system can only be accessed from 2018 and beyond. Last but not least, this study only explores secondary data which are the product specifications criteria prepared by the offering organisations through the e-*Perolehan* system.

For future research, a more comprehensive range of product groups can be extracted to obtain more variety and implementation levels in Malaysia's public sector organisations. Besides, to further verify the findings, questionnaires distribution to all procurement officers can be done to obtain their experience in implementing SPP in their organisations. Furthermore, looking at the low percentage of implementation, the quantitative method will also be able to identify the challenges that they might be facing to incorporate sustainability criteria into the procurement process.

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