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Evaluation on the Effectiveness of Green Procurement for Attainment of Sustainability

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Abstract:

This study analyses the effects of green procurement practices on sustainability based on a case study of five manufacturing companies in Zimbabwe. A pragmatic approach ie primary and secondary data was used. The research evaluated the current practices, awareness levels, challenges and strategies for effective implementation. Key stakeholders were interviewed and secondary data was be sourced from academic journals, books and online resources. The findings informed recommendations to enhance their green procurement practices so as to gain sustainability. The output showed the outcome to be favouring the implementation of green procurement for the attainment of sustainability. there is a positive correlation between green procurement and sustainability in line with the following sustainable goals; clean water sanitation, affordable and clean energy and responsible consumption and production.

Keywords:

Green Procurement, Sustainability, Suppliers, Procurement, Growth, Consumption

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Introduction

The EU's Green Public Procurement (GPP) initiative aims to leverage the significant public spending power of the EU to drive demand for greener goods and services, promoting a more sustainable and circular economy. Green Government Procurement (GGP), introduced by Malaysia in 2013 is characterized as the acquisition of goods, services, and work within the public sector that incorporates environmental criteria and standards to protect the natural environment and resources, thereby minimizing and mitigating the adverse effects of human activities. In 2013, to catch up with the rest of the world, East African Union Community (EAU) and its member states have likewise launched the Green Public Procurement (GPP) project. Public awareness campaigns have been launched to promote understanding of how important it is to procure sustainably. Some of the impacts of not solving ineffective procurement practices in manufacturing industry are natural resources depletion, land degradation, high production and procurement costs and power outages. According to World Bank reports, over 60% of the population lacks access to clean water due to poor environmental management. In Zimbabwe companies that are not complying to environmental regulations are paying fines and lose contracts, according to World Bank, Zimbabwe has faced serious environmental challenges, with deforestation rates estimated at 1, 5% per year, contributing to habitat loss and biodiversity decline. In Zimbabwe, green procurement practices are being incorporated into government operations. This involves giving sustainable products and services top priority in open bidding and contracts, especially in industries like manufacturing. As a component of their corporate social responsibility (CSR) plans, a number of private businesses in Zimbabwe are progressively implementing green procurement techniques. These businesses are concentrating on lowering their carbon impact and locating eco-friendly products. Through training initiatives and awareness campaigns, Non-governmental organizations in Zimbabwe are actively promoting green procurement by teaching government agencies and businesses about the advantages of sustainable purchasing. In Zimbabwe, the manufacturing industry is a significant economic sector that provides jobs for many individuals and plays a major role in the national GDP.The paper aims to answer the following questions;

1. Does the implementation of green procurement practices impact procurement performance?
2. How is green procurement related to environmental performance as well as the overall organisational performance?

Literature Review

Green procurement involves sourcing choices aimed at improving performance in social, economic, and environmental aspects (Carter and Rogers, 2008). Numerous organizations across the globe,

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encompassing both private and public sectors, are starting to understand the significance and advantages of implementing green procurement practices. As a result, they are striving to procure goods and services that have a reduced environmental impact. Environmental impact considerations encompass reducing greenhouse gas emissions and air pollutants, enhancing energy and water efficiency, minimizing waste while promoting reuse and recycling, utilizing renewable resources, decreasing hazardous waste, and limiting toxic and hazardous substances. Companies can enhance their procurement performance through green procurement, which allows them to influence their supply chain by requiring suppliers to adhere to specific environmental criteria prior to making purchases or signing contracts. The acquisition of eco-friendly products, components, and raw materials is given priority. By adopting green manufacturing practices, the manufacturing industry can reduce its negative effects on the environment while also conserving energy and natural resources. Green manufacturing practices involve utilizing technology to optimize operational efficiency, relying on renewable energy sources, procuring sustainable materials, and safeguarding natural regions and ecosystems. Practices that are environmentally friendly enhance the sustainability of manufacturing and offer various business advantages. These include cost reductions, adherence to regulations, a bolstered reputation, and enhanced safety for workers and consumers alike. (Rogers, Gomstyn & Donker).

Triple Bottom Line Theory

This theory suggests that companies should go beyond reporting solely on their financial performance and economic bottom line; they should also consider the social and environmental impact. It is frequently articulated through the 3Ps: People, Profit, and Planet. Companies ought to possess a well-defined vision and incorporate the needs and expectations of their stakeholders into their activities (Zak, 2015). This theory is a combinition of the following factors; economic, social, environmental as well as the philanthropic factor which aims for making the world a better place.

Benefits of Green Procurement Implementation in the Manufacturing Industry of Zimbabwe

Waste reduction

According to Kunar, Khanam & Rahman (2018) and Zhu, Sarkis & Lai (2019), using green procurement techniques can assist manufacturing organizations to reduce operational costs through improved efficiency and waste reduction. By adopting sustainable practices, manufacturers can lower energy consumption and minimize waste disposal costs, ultimately leading to significant savings over time. Waste is an unwanted aspect in the supply chain and hence the ned for its reduction is key for the attainment of sustainability in all areas of the supply.

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Supplier relationship management

The sustainability of the supply chain can be enhanced through collaboration with suppliers to adopt green procurement practices. Strategies may involve developing sustainable procurement policies, selecting suppliers based on their environmental performance, and providing support and training to these suppliers. This approach fosters better stakeholder relationships, boosts supply chain sustainability, and reduces environmental impacts (Wu, Chen & Liang, 2012). Knowing which supplier relationship toimplement where is very critical in the attainment of sustainability. Procurement practitioers must understand the diffrent types of supplier relationships and implement it correctly ie long term supplier relationships as well as short term supplier relationships.

Reduction in carbon footprint.

According to Carbon Trust (2011), green procurement practices can reduce organization´s carbon footprint by up to 20%. By using renewable sources of energy like wind and solar energy can greatly decrease dependence on fossil fuels and diminish greenhouse gas emissions. According to International Journal of Production Economics (2015), procuring energy efficient products such as LED lighting or energy-efficient appliances can reduce energy consumption. The environment is crucial in our day to day operations and must be conserved for sustainability attainment. The manufacturing companies must ensure that they comply with the rules and regulations of the diffrent organisations they will be operating in. Our environmnent is crucial and mut be taken seriously.

Hindrances to Green Procurement Implementation in the Manufacturing Industry of Zimbabwe

Lack of training and awareness.

Training may seem as a cost initially but when the company checks for the benefits it will be a huge benefit. It is important to inform the management about the importance of sustainability. European Commission (2015) identifies inadequate training as a major obstacle to adopting green procurement practices.

Higher initial costs

To successfully implement green procurement practices, organizations often need to invest heavily in new technologies and processes, which can be a barrier for organizations with limited financial resources. According to Chatakunye & Shumba (2019), they found out that higher upfront costs were a significant barrier in implementation of green procurement practices in manufacturing firms in Zimbabwe. Start up costs are very critical for any business.

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Limited suppliers on the market

Suppliers must invest in going green so as to enable a succeful green procurement and compliance with sustainable development goals. It is crucial the also identify long term supplier relationships so as to be in a position to implement supplier development as well as supplier involvement in order to ensure supplier availability. According to; Chari & Chiriseri (2014), they found out that there is absence of readily available suppliers that offer environmentally friendly products and services, it makes it difficult for organizations to implement green procurement practices. It can be difficult to verify that suppliers are actually using sustainable practices especially when there are limited option.

Resistance to change

Resistance to change is a major barrier in implementing green procurement practices in manufacturing industries of Zimbabwe. According to report by The Confederation of Zimbabwe Industries (2018), procurement officers may resist implementing green procurement practices due to concerns about increased costs that come with adopting green practices such as higher prices for eco- friendly products and services.

Methods and Data

A structured questionnaire was used in survey research to gather primary data. The researchers used this design because it is simple to use for the collection of data and enables the researchers to information from the primary source about the effectiveness of sustainable procurement procedures on environmental performance and procurement performance. The researchers utilized both primary and secondary data sources in this study to ensure that the data structures and information required to solve the problems in decision and information research are accessible. An interveiw was done to gather data, these were done online by the researchers to ensure that the respondents can immediately respond to questions. Detailed open ended questions were used as the main tool to gather first-hand information. In order to gather data from the staff from selected in the procurement and supplies departments were chosen to enquire on knowledge og green procurement as well as green manufacturing and about how effectively green procurement practices enhance environmental performance and procurement performance. This was be done to limit answers to the relevant area of study. The manufacturing sector under is a target population from five manufacturing companies in Metropolitian. 220 employees working in different departments such as production, procurement, stores, finance, marketing, quality, human resources and maintenance made up the sample size of 140 respondents. Personal interviews with top management were to be done to know some fascinating and important data that the questionnaire did not cover. According to Emery and Couper (2003), raw data is not useful until it is converted into information that can be used to make decisions. Information regarding sustainable procurement

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practices and its effects on environmental performance was to be gathered through the use of structured questionnaires, semi-structured interviews and statistical data analysis. The data will be collected and evaluated through the use of statistical methods such as distribution tables, bars, and pie charts. Quantitative data was analysed using SPSS and qualitative data was analysed using thematic analysis.

Results

The researcher distributed 80 questionnaires and 80 respondents were received representing 100% response rate. According to Sataloff and Vontella (2021), a response rate that exceeds 60 % is desirable therefore the response rate obtained in this research is in accordance with previous researches done. To ensure the consistency and internal reliability of the questionnaire used in the study, a Cronbach's Alpha test was conducted. The most reliable was the Environmental Performance construct with $\alpha = 0.84$, implying that the respondents answered questions on the environmental effect of green procurement uniformly. The findings establish that the instrument is appropriate in measuring the effectiveness of green procurement practices at manufacturing organisations in Metropolitan. Regression equation shows that green buying habits strongly predict buying and environment performance ($R^2 = 0.585$, $p < 0.01$). The equation accounts for nearly 58.5% of the explained variation in outcome performance. The coefficient ($B = 0.735$) indicates that one unit increase in green buying habits has a point estimate effect of 0.735 on the dependent variable. The data collected reveals that a significant most of the respondents to the questionnaire from the selected manufacturing companies were male comprising 56.30% of the respondents and 43.70% were female. Most of the participants falls in the 26–35 years age group, and 14 were aged between 36–45 years.

Interviews were carried out only top five managers and five suppliers. Most respondents also alluded that enhanced green procurement is important and suppliers must be in a position to adopt green ways of doing things for the whole supply chain to be profitable.

"The implementation of the green procurement will aid in sustainability " a procurement officer asserted.

This aligns with studies by Zhu et al. (2017), whose argument is that green procurement promotes improved supply chain control, transparency, and minimizing disruption opportunity chances in regards to procurement.

Another interviewee stated:

"We need suppliers who adhere to environmental needs, and this help us to make more stable and compliant partners."

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The respondents once again alluded that embracing environmentally sound means of sourcing had significantly minimized the carbon footprint, encouraged recycling, and facilitated improved waste management practices.

"Green procurement and environmental training aided us to reduce packaging waste and enhance managing surplus material."

Environmental awareness programs such as staff seminars, green certification programs, and in-house sustainability audits were said to have enhanced adherence to environmental specifications and laws. The most common challenges stated were initial high costs to get activated, few environment-certified suppliers, and inadequate internal training and sensitivity among employees.

"Few supplier options and the expense of going green seem to be significant hurdles," replied another respondent.

Another respondent from the supplying side contributed:

"While we are being encouraged to supply green materials, it is always hard to identify affordable products within the local supplier market."

It is indicated by these views that institutional promotion of green procurement is feasible but its use within the situation of Zimbabwe's economy is still challenging. To ensure the consistency and internal reliability of the questionnaire used in the study, a Cronbach's Alpha test was conducted. This statistical metric evaluates the internal consistency of several items designed to measure the same construct. Tavakol and Dennick (2011) state that in most research in social sciences, a Cronbach's Alpha value of 0.70 or above is considered as acceptable. Findings indicate that all the constructs measured by the questionnaire had Cronbach's Alpha values of more than 0.70, thus showing reliability and internal consistency of the instrument. The most reliable was the Environmental Performance construct with $\alpha = 0.84$, implying that the respondents answered questions on the environmental effect of green procurement uniformly.

The findings establish that the instrument is appropriate in measuring the effectiveness of green procurement practices at selected manufacturing companies. To find out whether data met the assumption of normality needed for parametric tests, a Shapiro-Wilk test was run. Shapiro-Wilk test is most suitable for small and medium-sized samples and tests whether a variable follows a normal distribution.

The data on the pie chart reveals that a significant most of the respondents to the questionnaire from five selected manufacturing organisation, were male comprising 60.53% of the respondents and 39.47% were female. This reveals that they may be cultural and societal norms in manufacturing industry of Zimbabwe, society believes that manufacturing labor roles are more suited for men, leading to fewer

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women pursuing careers in this field. According to the study conducted by Mhaka and Mlambo (2019), which found out that women face several barriers to entry into the manufacturing industry.

Theme 1: Green Procurement Impact on Organizational Performance

Support from the data collected from the procurement, production, and quality departments affirms that green procurement processes improve procurement performance. Respondents indicated that the use of sustainable approaches such as eco-labelling, environmental auditing of suppliers, and lifecycle costing has improved the reliability and quality of goods and services procured. In addition, green procurement was discovered to have minimized redundancy in procurement and brought to an end wasteful supplier, thus conserving time and resources. This aligns with studies by Zhu et al. (2017), whose argument is that green procurement promotes improved supply chain control, transparency, and minimizing disruption opportunity chances in regards to procurement. This means green procurement is not only an environmental strategy but also an operations enhancement and risk reduction tool.

Theme 2: Impact of Green Procurement on Environmental Performance

These findings align with the research done by Eltayeb et al. (2011), they posit that green buying significantly minimizes the environmental impact of manufacturing companies by integrating purchasing behavior and sustainable development policies. This transition also conforms to wider global patterns that prioritize environmental stewardship as a business imperative compared to a regulatory requirement. In addition, participants also pointed out that in-house capacity-building remains lagging behind. Although a few departments have already started environmental training, the latter has not yet been institutionalized at the organizational level.

Conclusion

The study mainly focused on green procurement to enhance environmental performance and procurement performance. The study is grounded in findings from various studies conducted in different continents and in countries where green procurement practices are effectively implemented such as Asia, Europe, Africa and Zimbabwe. The theoretical principles of various theories were also applied in the research project including Triple bottom theory, Stakeholder theory, Resource based theory and corporate social responsibility theory. The methodology of the study was entirely survey-based and qualitative. For instance thirty eight employees from the selected manufacturing companies were involved. The researcher used different strategies to gather enough data from the participants. Purposive sampling was used to conduct, interviews and questionnaires were also used to gather information from staff members. The researcher found the following findings in the data collected from various respondents using different study instruments

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