

AMELIORATING PUBLIC PROCUREMENT PERFORMANCE: GREEN PUBLIC PROCUREMENT POLICIES WITHIN A LEGISLATIVE FRAMEWORK

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Abstract

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This paper highlights green public procurement, the difference between it and sustainable public procurement, and the benefits that green public procurement can achieve for the environment and its preservation. The paper also seeks to know how public procurement performance can be improved by designing and implementing green public procurement policies to stimulate environmental sustainability in the public sector and to provide a model for applying green public procurement to government agencies. The descriptive and analytical approaches were used to highlight the importance of public procurement as one of the powerful drivers and tools for governments through which public policies can be directed towards sustainable green policies. The importance of the paper lies in its presentation of the challenges facing the design and implementation of green public procurement policies, which are represented in the problems and challenges facing suppliers, governments, and financing. The paper concluded that there are many risks associated with policy and change among government leaders, ministers, senior executives, and officials in public procurement departments. This paper is a concept paper that provides an analysis of multiple aspects of green public procurement by addressing the main benefits, challenges, and risks for both parties in the procurement process, whether the government or the suppliers.

Keywords: Green Public Procurement, Sustainable Procurement, Environmental Sustainability, Public Sector, Innovation

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1. INTRODUCTION

Public procurement is considered one of the essential tools for governments (Similä & Mwesiumo, 2024) to carry out their constitutional and legal functions. Through public procurement, the government's general policy can also be directed

(Chiappinelli & Seres, 2024). This is due to the volume of public purchases from the state's general budget (Sönnichsen & Clement, 2020). Most countries allocate between 15% to 30% of public spending for public procurement. This percentage also rises from 20% to 35% of gross domestic product (GDP) in developing countries (Johnson &

Klassen, 2023). In Arab countries, government spending for public procurement may sometimes reach 40% of GDP. Given the enormous financial allocations for public procurement, governments exploit this to guide policies and goals (Zhang & Zhang, 2024) by following green policies for these allocations. Governments can exploit this by designing green public procurement policies and disseminating them to all government agencies, which will lead to what is called optimal utilization of the size of financial allocations for public procurement to convert them into green public procurement.

The policy of public bodies and institutions varies in focusing on aspects of green public procurement (Stokke et al., 2022; Aboelazm, 2024), depending on the policy of each body or institution. Some bodies want to reduce the purchasing cost of products made by purchasing recyclable products and include environmental standards for products in the criteria and terms of comparison between suppliers (Aboelazm & Dganni, 2025), known as the green differentiation condition (Tarantini et al., 2011). Some public bodies and institutions focus on reducing energy consumption (Zhu et al., 2013), which is called logistical practices in green public procurement. In addition to logistical practices (Musacchi, 2021), transportation and packaging materials and all logistics resources are environmentally friendly.

As part of green public procurement policies, green public procurement may include some requirements for suppliers, such as obtaining international certificates and accreditations such as the International Organization for Standardization (ISO) (Rainville, 2017). In light of climate change and carbon dioxide emissions, public bodies and institutions in most countries are mainly seeking to rely on green public procurement to purchase goods and services (Alvarez & Rubio, 2015). They are also trying to focus on environmental goals and the goals of the United Nations to achieve sustainable development by reducing harmful emissions. For the environment, such as greenhouse gases, supporting the recycling of products and industries, and relying on less energy and water in public purchases (Aboelazm, Dganni, et al., 2024), especially in construction contracts that depend on petroleum, energy, and water resources (Testa et al., 2012; Aboelazm, Tawakol, et al., 2024).

Despite all the advantages and benefits of green public procurement to businesses, goods, and services, adopting green public procurement policies may face many obstacles and challenges. The government's policies must be compatible with the preparations of the private sector in society for this policy to succeed (Igarashi et al., 2015; Tarantini et al., 2011). The government must open an expanded dialogue with the private sector before implementing these policies (Zhu et al., 2013). The willingness of the private sector to supply the government with businesses, services, and goods must be able to consider environmental factors (Revez et al., 2023). Therefore, gradually initiating green public procurement policies with a long-term green public procurement strategy should be considered (Brusselsaers et al., 2017). Evaluation and re-evaluation of the market and private sector conditions must be regarded, and government policies must not be isolated from reality (Musacchi, 2021).

On the other hand, the risks of green public procurement policies that reach suppliers and contractors must be considered (Leger et al., 2013). Political risks are considered one of the most significant and dangerous risks suppliers and contractors may face. Suppose there is instability in public procurement policies (Vidal & Sánchez-Pantoja, 2019). In that case, this will be directly reflected in the instability of government demand. Therefore, the supply from the private sector for green public procurement could be accompanied by significant losses, which makes political risks a central turning point in the private sector's response to green procurement policies (Leffel, 2022). Fluctuations in government requests regarding public procurement can pose a significant threat and risk to environmental sustainability efforts, mainly green public procurement (Malacina et al., 2022; Neto, 2020).

Furthermore, the government has many motivations and incentives to adopt green procurement policies and shift from non-green procurement to green procurement. There are several areas where green public procurement can achieve savings in costs (Wendt-Rasch et al., 2021), purchasing (Shadrina et al., 2022), storage (Burghardt & Pashkevich, 2021), resale, and depreciation. These areas push the government to adopt green public procurement policies. However, some areas are unknown to the government, and the size of the returns from green public procurement cannot be determined (Sönnichsen & Clement, 2020). There is a feeling among some politicians and leaders that green public procurement will reduce the quality of the product or business (Sparrevik et al., 2018). Not only that (Kou et al., 2024; Cheng et al., 2018), but the government sometimes feels that green public procurement will lead to higher indirect costs (Orset, 2024). Government managers and executives must develop procurement procedures and policies to accommodate green public procurement (Wang et al., 2024; Cheng et al., 2018). Looking at the studies that deal with green issues in public procurement (Chiappinelli & Seres, 2024).

Moreover, green public procurement's main advantages and benefits lie in its being one of the most significant market catalysts (Xu, 2023). Green public procurement expands the market for environmentally friendly businesses, services, and products (Wang et al., 2021) while maintaining the efficiency and effectiveness of public procurement as an environmental tool and policy. This point raises many serious questions. There is a scarcity of literature addressing the advantages of green public procurement and the challenges green procurement policies face. The literature on green public procurement focuses mainly on the aspects and issues related to the private sector that are of interest to it and does not pay attention to the governmental elements and issues to the same extent (Joković, 2016).

The study will address the conceptual framework of concepts such as green public procurement and sustainable public procurement. This paper will also identify the most critical challenges facing implementing green public procurement policies and the benefits that green public procurement can bring to governments, society, and stakeholders.

Therefore, this paper will present the challenges facing the implementation of green public procurement policies and will also attempt to answer the main research question, which is as follows:

RQ: How can public procurement performance be improved by designing and implementing green public procurement policies to stimulate environmental sustainability in the public sector?

The study will also answer some sub-research questions, as follows:

RQa: What is the difference between green and sustainable public procurement?

RQb: What are the challenges facing implementing green public procurement policies?

RQc: What are the political risks facing the implementation of green public procurement policies?

RQd: What are the advantages of green public procurement?

Many governments seek to adopt green public procurement policies, as directed by international organizations, and to confront apparent climate change, harmful emissions of carbon dioxide, and the environmental effects of greenhouse gases. It is, therefore, the responsibility of governments to start using green procurement. It can design and implement successful green public procurement policies with robust public procurement. This study will focus on the challenges governments face in making green public procurement policies successful and how to overcome them, given the benefits of green public procurement.

The rest of the paper is structured as follows. Section 2 reviews the relevant literature. Section 3 presents the methodology. Section 4 analyzes the research results. Section 5 discusses the ideas through the papers and analyzes the findings. Section 6 concludes the paper.

2. LITERATURE REVIEW

Public procurement is one of the tools used to achieve public policy objectives. Protecting national industries and products can be done by stipulating a preference for national products and industries in the selection criteria and other policies that consider gender and social equality (Uttam & Lann Roos, 2015; Hanson et al., 2023; El Haddadi et al., 2021). Speaking of environmental and sustainable public policies, public procurement can play an essential role in achieving its environmental and sustainability goals through public procurement (Zaidi et al., 2021; Son, 2024; Kozuch et al., 2024; Abdul Hafish et al., 2024; Zhang & Zhang, 2024; Buniamin et al., 2016). Although this trend is relatively recent, sustainable public procurement policies began to develop rapidly in the late 1990s at all local, national, regional, and international levels (Cao et al., 2024).

The United Nations also held several summits under which it established green public procurement initiatives (Wang et al., 2021; Wang et al., 2024; Orset, 2024). The Organization for Economic Co-operation and Development (OECD) also established another initiative related to green public procurement by approving executive policies for purchasing environmentally friendly businesses, services, and products in 1996 (Kou et al., 2024; Cheng et al., 2018; Sparrevik et al., 2018; Sönnichsen & Clement, 2020). In the same year, Japan

established the Green Procurement Network, and the International Council for Local Environmental Initiatives launched the European environmentally friendly public procurement initiative (Burghardt & Pashkevich, 2021; Wendt-Rasch et al., 2021).

The European Commission has set its central policy for protecting the European environment (Zhu et al., 2013; Revez et al., 2023; Brusselaers et al., 2017). The European Union (EU) also designed and drafted some legal frameworks that included EU regulations and directives for adopting green public procurement policies in 2004 and 2006 (Musacchi, 2021; Rainville, 2017). The EU has set sustainability and environmental standards in public procurement policies and has directed EU member states to rely on public procurement to direct the market towards enhancing sustainability and preserving the environment (Alvarez & Rubio, 2015). The EU has adopted eco-label policies on industries and products (Testa et al., 2012). European governments cannot purchase businesses, products, or services that do not carry this environmental label (Testa et al., 2016; Cheng et al., 2018). The eco-label has also become one of the most important criteria for comparing offers (Leger et al., 2013; Vidal & Sánchez-Pantoja, 2019).

The World Trade Organization (WTO) has also played an essential role in directing green public procurement policies towards sustainable green procurement and has explicitly supported these policies (Malacina et al., 2022; Neto, 2020). The WTO decided that the free trade system and the open market should not conflict with sustainable development and procedures and policies to protect the environment on the planet (Similä & Mwesumio, 2024). In some international agreements, the WTO has recognized the need to work according to green and sustainable environmental policies and that preserving the environment is a global priority in light of climate change (Mojumder et al., 2022; Uttam & Lann Roos, 2015; Zaidi et al., 2021). The WTO also added that adopting these preferential policies in selecting suppliers and contractors cannot be viewed as subjective discrimination but rather as objective discrimination that is relied upon to achieve a better global environment.

3. RESEARCH METHODOLOGY

The methodology of this study is grounded in a descriptive approach, which serves as the foundation for analyzing the concepts of green public procurement and sustainable public procurement, along with their distinguishing characteristics. This approach facilitates a comprehensive understanding of the nuances between green public procurement and sustainable public procurement, allowing for a detailed examination of their respective frameworks. Additionally, an analytical approach is employed to identify the benefits associated with green public procurement and the significant challenges that hinder the effective implementation of green public procurement policies. The study further explores potential strategies to overcome these obstacles, thereby contributing to developing sustainable procurement practices.

To ensure the robustness of the findings, this research draws extensively on existing literature that

addresses both green public procurement and sustainable public procurement, encompassing theoretical and empirical studies. The literature review is meticulously curated, focusing on research published in high-ranking, peer-reviewed scientific journals. These journals are indexed in reputable international databases, including JSTOR, EBSCO, Web of Science, and Scopus, ensuring the credibility and relevance of the sources. Furthermore, the study incorporates works from esteemed international publishers such as Elsevier, Sage, Emerald, Inderscience, and Taylor & Francis.

In selecting the literature, specific keywords such as “green public procurement”, “sustainable public procurement”, “environmental policies”, and “procurement challenges” were utilized to ensure a comprehensive search. The range of periodicity for the literature spans from 2010 to 2023, capturing both foundational theories and recent advancements in the field. This temporal scope allows for analyzing how the concepts have evolved and their relevance in public procurement practices. By leveraging this wealth of scholarly resources, the study aims to provide a well-rounded analysis of green public procurement, highlighting its significance in promoting sustainable development within public sector procurement practices.

This elaboration emphasizes the systematic approach taken in selecting literature and the importance of the temporal scope in understanding the evolution of green public procurement concepts.

4. RESULTS

4.1. The concept of green public procurement

Green public procurement is defined as procurement that takes into account environmental issues and factors in businesses, services, and goods purchased by the government and public authorities (Vidal & Sánchez-Pantoja, 2019). The preferential criteria in submitting bids in tenders are the extent to which suppliers and contractors consider environmental factors and harmful environmental effects in the offers and bids submitted by tender (Cheng et al., 2018). Concerns raised regarding the environment and climate change are the primary justification for governments designing and implementing green policies in all fields (Brusselaers et al., 2017). Therefore, the strength of public procurement is considered one of the main drivers for implementing these policies (Cerutti et al., 2016; Burghardt & Pashkevich, 2021). On the other hand, green public procurement plays an essential role in conserving energy and scarce natural resources

(Chiappinelli & Seres, 2024). The primary goal of green public procurement is to preserve the environment, but this does not prevent the existence of other sub-goals that can be achieved (Similä & Mwesummo, 2024; Xu, 2023).

4.2. Green public procurement challenges

The implementation of green public procurement faces many challenges and obstacles at many levels, as some have indicated that the lack of support from senior executive management levels is considered one of the main challenges for green public procurement policies (Wang et al., 2021). In addition to the lack of information and limited resources, some regulatory issues, incentive issues for suppliers and contractors, and the environmental orientations of the government on the one hand and the private sector on the other (Chiappinelli & Seres, 2024). In addition to the challenges related to the effectiveness of sustainable environmental public procurement (Wang et al., 2024; Orset, 2024). Despite this, the challenges of implementing green public procurement policies must be identified systematically (Kou et al., 2024; Sparrevik et al., 2018). In light of this, several previous studies addressed public procurement, environmental, and sustainability issues. Some have come up with a proposal for the main factors that represent a fundamental challenge to implementing green public procurement policies. This has been identified with five fundamental challenges:

1) Awareness and complete and adequate knowledge of all aspects of green issues (Chiappinelli & Seres, 2024);

2) Issues related to some organizational aspects of green environmental management (Burghardt & Pashkevich, 2021; Shadrina et al., 2022);

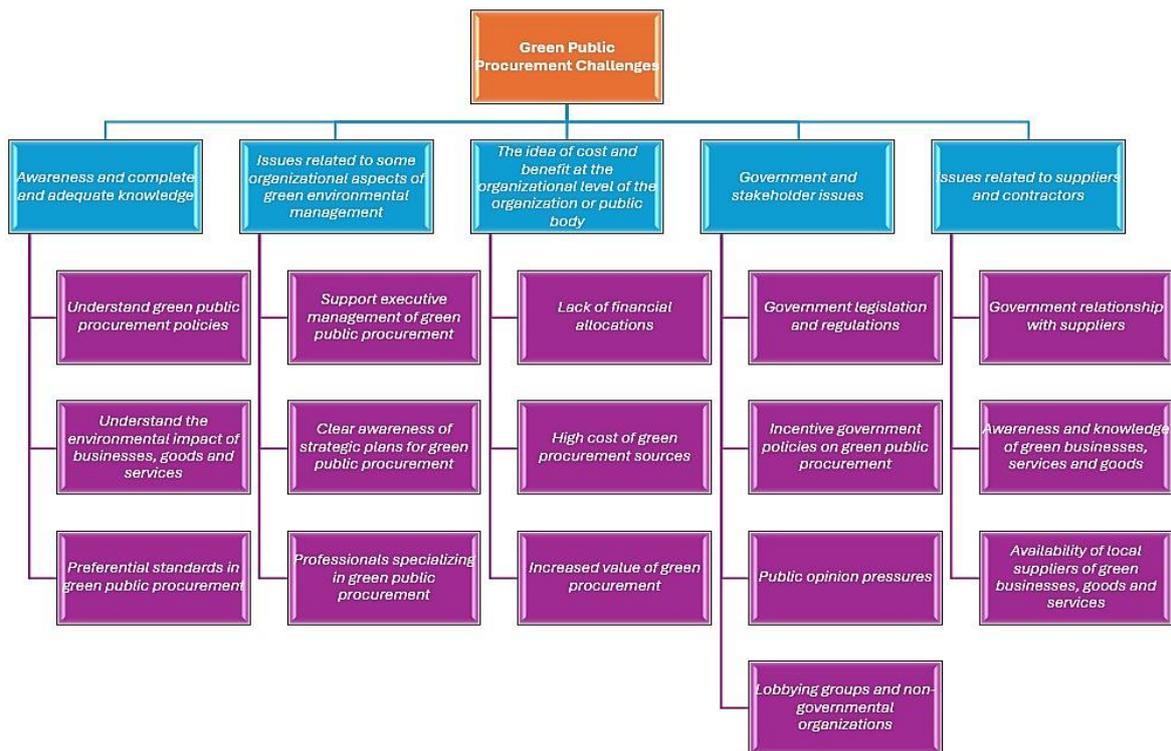
3) The idea of cost and benefit at the managerial level of the organization or public body (Zhang & Jiang, 2022; Kozuch et al., 2022);

4) Issues related to government, the private sector, and non-governmental organizations (NGOs) (Lindström et al., 2022);

5) Issues related to suppliers and contractors (Krieger & Zipperer, 2022; Tarantini et al., 2011). Other studies have divided the challenges of implementing green public procurement policies into 16 (Brusselaers et al., 2017), considering new developments that include a more comprehensive outlook than the previous ones (Revez et al., 2023; Musacchi, 2021).

In light of this, some challenges were combined, and some classifications were designed for these challenges (Rainville, 2017; Alvarez & Rubio, 2015), as follows in Figure 1.

Figure 1. Green public procurement challenges



Source: Authors' elaboration.

4.2.1. Awareness and complete and adequate knowledge

For green public procurement policies to be implemented effectively and achieve the desired goals, professionals working in public procurement must understand environmental, sustainability, and green concepts. Not only that, but public procurement officials must also have complete and sufficient knowledge of the environmental impact of various businesses, services, and goods. Furthermore, those working in public procurement departments should be aware of green preferences in procurement proposals (Testa et al., 2016) as follows.

Understand green public procurement policies

One of the most critical challenges facing implementing policies related to green public procurement is the inability of those working in public procurement to understand the policies formulated or even the issues of green procurement. There must be constant communication between policymakers and implementers, as the best public policies may break at the implementation rocks (Cheng et al., 2018; Leger et al., 2013). Being realistic when implementing policies is one of the main factors in the success of these policies. Suppose public procurement personnel responsible for green public procurement cannot implement it due to a lack of familiarity with sustainability or green issues (Vidal & Sánchez-Pantoja, 2019). In that case, policymakers must first develop plans to address this challenge. Workers in public procurement departments must be qualified and trained on green public procurement policies and issues at all stages of green public procurement processes, starting with the preparation of tender documents,

determining the conditions and requirements for participation in the tender, pre-qualification of suppliers and contractors (Leffel, 2022; Malacina et al., 2022), and mechanisms for selecting the best offers based on Low environmental impact and best value for money (Neto, 2020).

Understand the environmental impact of businesses, goods, and services

Employees of public procurement departments in government and the public sector must have sufficient and detailed knowledge of the environmental impact of businesses, goods, and services (Uttam & Lann Roos, 2015). Knowing the environmental impact of these businesses, services, and goods purchased helps the government determine green environmental differentiation criteria (Zaidi et al., 2021). The absence and deficiency of information about the environmental advantages and benefits of companies, services, and goods would significantly limit the application of green differentiation standards adopted in the public sector. Some suggest that the product's life cycle be analyzed. All costs and expenses be verified, starting from purchase, storage, operation, depreciation, and disposal (Abdul Hafish et al., 2024).

Preferential standards in green public procurement

Some have stated that mandatory preferential green standards for public procurement could help reduce the environmental impacts on businesses, services, and goods (Zhang & Zhang, 2024). However, the real dilemma does not lie in these preferential criteria (Buniamin et al., 2016); rather, the primary dilemma lies in comparing one of the comparison criteria when choosing offers (Cao et al., 2024). Should

the lowest environmental impact be relied upon as the best offer, or should the lowest prices be the best? Some studies have indicated that several public sector organizations include green preferential criteria as differentiation criteria in their tender documents and procurement policies. However, they do things differently in practice. Not only that, but some studies have also indicated ambiguity in tender documents regarding the green differentiation criteria (Magerholm Fet et al., 2011), as the wording of these criteria is often very ambiguous, leading to the failure to determine an accurate concept of whether this criterion is achieved or not.

4.2.2. Issues related to some organizational aspects of green environmental management

There are many challenges related to green public procurement at the internal level, the most important of which are regulatory issues. It can constitute a significant obstacle to implementing green public procurement policies in the event of scarcity of human and technical resources (Chen & Guo, 2009). In addition, green regulatory issues include environmental or green regulatory incentives, and these challenges are as follows.

Support executive management of green public procurement

Support to senior executives is one of the most critical drivers or incentives that directly influence green public procurement. The literature indicates that senior management's support of managers and senior executives not only leads to supporting these managers in the short or medium term but also helps and supports them in mobilizing the most significant possible number of human resources and technical competencies that enable the institution or organization to implement green public procurement strategies and policies (Davies & Mullin, 2011).

Clear awareness of strategic plans for green public procurement

Senior executives and those responsible for public procurement must be adequately aware of the objectives and strategies of green procurement. Without this awareness, these managers are responsible for developing strategic plans, so they cannot design clear strategic directions and policies for green public procurement. Therefore, the government's green public procurement policies will fail. Some point out that there is much evidence that organizations that do not have clear goals and strategies regarding the environment and sustainability have been unable to implement green public procurement policies (Kunzlik, 2013).

Professionals specializing in green public procurement

Many studies have indicated that public procurement is no longer clerical but technical. Some countries provide university and professional degrees and certificates in public procurement. Consequently, the public procurement function became a profession, and the public procurement official became more experienced. Therefore,

officials in green public procurement must have complete knowledge and study of environmentally friendly green procurement policies, strategies, and objectives.

4.2.3. The idea of cost and benefit at the organizational level of the organization or public body

Some believe that most organizations and institutions are taking slow steps towards green public procurement due to the expected financial cost of this type of public procurement and in light of the limited financial allocations in the budget (Chiappinelli & Seres, 2024), in addition to the strict restrictions on spending that most government sector agencies and bodies face (Kou et al., 2024), the ideas and perceptions related to effectively sustainable or green public procurement and achieving a significant return in light of the high cost incurred by these organizations play an important role in green public procurement policies. On the other hand, several literatures indicate that pumping money and investing in sustainability and green products positively affects organizations' financial performance (Joković, 2016). This challenge can be discussed in the following points.

Lack of financial allocations

The literature shows that the absence of financial support and the lack of sufficient financing prevent companies from implementing green public procurement projects. The lack of the necessary budget to implement green public procurement policies (Kaaret et al., 2022), which have been placed on the government's priority agenda, has become one of the main problems that must be searched for solutions and sources of funding to address them (Kunzlik, 2013). The government must provide organizations with the financial resources and funding necessary to pump them into green public procurement, which constitutes significant benefits in the long term.

High cost of green procurement sources

In light of the promotion of green public procurement and the lack of sufficient sources of green products and commodities in local markets (Davies & Mullin, 2011), determining the sources of availability of these goods and products takes a long time, which leads to high costs. For example, hospitals and healthcare-related purchases are imported from many countries abroad. Searching for similar products that serve the same purpose and have the advantage of being green takes so long that the final cost of the green product exceeds its potential benefits and returns (Coggburn, 2004).

Increased value of green procurement

Some believe green public procurement does not achieve any returns when compared to its high cost (Chen et al., 2009) or when comparing the benefits to the organization. Some decide that green public procurement opens markets for some private sector companies with large capitals, and the public procurement market is closed to other companies. In addition, the traditional alternative is more

beneficial than green public procurement, as the latter does not provide the best value for money (Magerholm Fet et al., 2011).

4.2.4. Government and stakeholder issues

Governments consider stakeholders in any public policy they take or intend to take. Stakeholders vary depending on the policy issue. As for green public procurement policies, the stakeholders are NGOs (Cao et al., 2024) and the public and private sector companies expressed in the market (Buniamin et al., 2016; Abdul Hafish et al., 2024). Matters related to legislation and regulations related to incentives for investors in green public procurement and government support for them, in addition to successive senior management (Zhang & Zhang, 2024), senior executives, and managers responsible for implementing green public procurement policies (Kozuch et al., 2024). There are also some issues related to NGOs, such as pressuring the government to implement green policies in public procurement (Son, 2024). This is as follows.

Government legislation and regulations

Government legislation and regulations are considered one of the most critical factors in the government's efforts to improve the environment (El Haddadi et al., 2021). The government's support through legislation and regulation is crucial for achieving the goals and policies of green public procurement (Hanson et al., 2023; Zaidi et al., 2021). According to several studies and literature, government legislation and regulations supporting green public procurement policies would help change purchasing policy from traditional to green. This is done by designing rules and legislation that impose some practices related to green procurement, which would encourage producers, suppliers, and contractors to adopt green products, businesses, and services (Uttam & Lann Roos, 2015).

Incentive government policies on green public procurement

Many pieces of literature confirm that government policies are considered one of the most critical pillars in achieving green public procurement (Mojumder et al., 2022). Political will is an important determinant. The will of the political leadership is reflected in supporting these policies by providing a package of incentives, credit facilities, and tax exemptions (Neto, 2020; Malacina et al., 2022). In addition, the government provides the necessary financial support to private organizations and institutions that purchase green products, services, and businesses (Leffel, 2022; Testa et al., 2016).

Public opinion pressures

Through public policy, the government seeks to satisfy the needs of the general public. Since the ultimate consumers of public procurement are the citizens themselves, their pressure on the government to adopt green public procurement policies is considered one of the primary drivers and can even be regarded as the dominant primary driver of green public procurement (Braulio-Gonzalo & Bovea, 2020). People may pressure the government to provide a clean environment free of harmful emissions and greenhouse gases (Vidal & Sánchez-

Pantoja, 2019). This leads the government to pressure suppliers and contractors to supply works, services, and environmentally friendly and green goods (Ahsan & Rahman, 2017).

Lobbying groups and NGOs

Some of the most important parties in the decision-making process are pressure groups and NGOs (Leger et al., 2013), as they play a prominent role in informal oversight of government actions and policies in all fields (Cheng et al., 2018), particularly in the environmental field (Testa et al., 2012). Strengthening the role of NGOs and lobby groups in monitoring green public procurement is paramount. Some literature suggests that pressure from NGOs and lobbyists on buyers, suppliers, or contractors would improve and encourage green public procurement practices and policies.

4.2.5. Issues related to suppliers and contractors

According to their contractors and suppliers, institutions and agencies are described as green. Suppliers and contractors are the primary stakeholders (Alvarez & Rubio, 2015). Suppose there is no participation from suppliers and contractors besides their support for green issues. In that case, green public procurement will not be achieved (Rainville, 2017), and green public procurement policies will remain just dreams and imaginary assumptions (Musacchi, 2021). For suppliers and contractors to become green (Brusselsaers et al., 2017), they are subject to constant and continuous monitoring and auditing to ensure that they take into account the environmental aspects of their work, services, and products in a way that helps reduce environmental impacts (Revez et al., 2023), as follows.

Government relationship with suppliers

One of the most critical challenges related to suppliers is their relationship with the government and cooperation with them in various activities that help develop businesses, services, and goods with a low environmental impact (Zhu et al., 2013), reduce environmental waste (Tarantini et al., 2011), exchange information and data about ecological sustainability (Igarashi et al., 2015), and even manage social and environmental risks. Cooperation between the government and suppliers is one of the most critical issues in requiring stakeholders to implement policies and solutions appropriate for the environment (Cerutti et al., 2016; Krieger & Zipperer, 2022).

Awareness and knowledge of green businesses, services, and goods

This challenge includes the need for suppliers and contractors to be fully informed about green companies, services, and goods. They must be ensured of their continuous knowledge of green business management (Stokke et al., 2022), which can be done through constant education and training (Lindström et al., 2022). The government must provide suppliers and contractors with this (Bryngemark et al., 2023) with the necessary training on green environmental management in business, goods, and services (Kozuch et al., 2022).

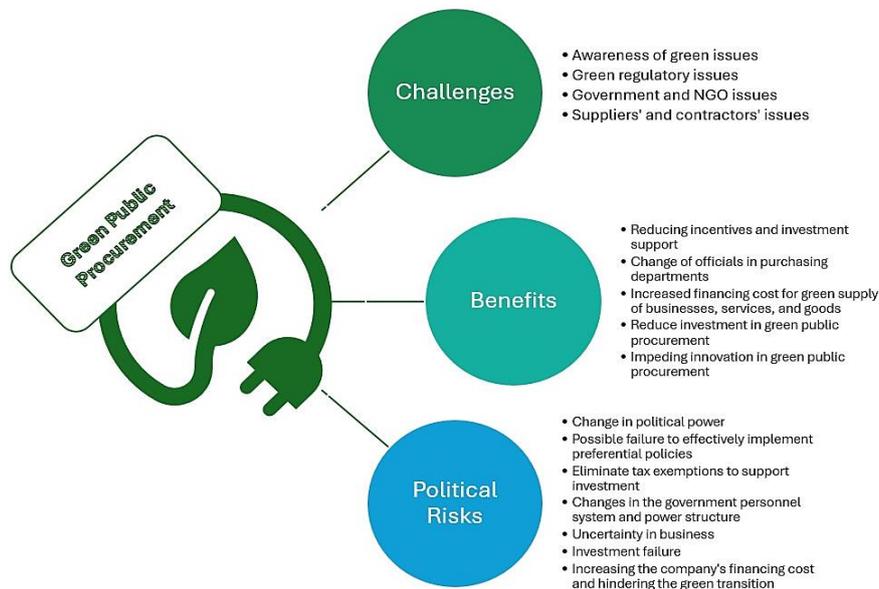
Availability of local suppliers of green businesses, goods, and services

In some areas, obtaining a local supplier supplying green companies, goods, and services can be challenging (Johnson & Klassen, 2023). Since the environmental and green aspects require large companies and entities that may not be available at the national level, and if they are available, there will be very few, in addition to the possibility that there is no desire from these suppliers and contractors for green supply (Zhang & Jiang, 2022). However, increased demand for certain green businesses, services, and goods from these large entities and companies may discourage other suppliers and contractors from supplying green firms, services, and goods. Continuously supplying green products requires the most significant number of suppliers (Shadrina et al., 2022).

4.3. Green public procurement policies

Little literature has dealt with green public procurement policies in terms of their multiple objectives (Kunzlik, 2013), and a green public procurement policy may not lead to the desired result (Testa et al., 2012; Vidal & Sánchez-Pantoja, 2019) because it reflects a set of interconnected objectives in one chain (Alvarez & Rubio, 2015). Therefore, there is difficulty in achieving them in an integrated or ideal manner. Thus, this paper will focus on some aspects related to government issues of green public procurement, such as employee awareness of green public procurement and its impact on this policy (Kaaret et al., 2022; Brusselaers et al., 2017). In addition, it will analyze the effects of green public procurement on business prices, goods, and services (Cerutti et al., 2016), including the product life cycle. Also, political risks could affect green public procurement and the challenges facing the design and implementation of green public procurement policies (Figure 2).

Figure 2. Examining of green public procurement policies



Source: Authors' elaboration.

5. DISCUSSION

Governments seek to attract significant companies that possess advanced technology and are capable of innovation, and governments seek to build global partnerships with these entities and companies (Wendt-Rasch et al., 2021). These companies have the technical and financial capabilities to support green public procurement policies by providing innovations in businesses, services, and goods with a low environmental impact (Burghardt & Pashkevich, 2021). Green public procurement is considered one of the most profitable supply chains. However, large companies and entities are reluctant to enter these types of purchases unless they are provided with significant incentives and support to be attractive to these companies and achieve high profitable returns (Braulio-Gonzalo & Bovea, 2020). Also, since governments are the largest buyers in the global and local markets, their inability to pay does not pose risks for suppliers and contractors (Sönnichsen & Clement, 2020). Accordingly, governments can form

political ties with these companies and entities in the field of public procurement in general and green public procurement (Sparrevik et al., 2018).

However, the political risks in these companies cannot be ignored (Kou et al., 2024). Supply chains that depend on political ties (Cheng et al., 2018) between governments and companies can pose one of the most critical risks for companies and large entities (Orset, 2024; Wang et al., 2024). This may significantly affect companies' strategy towards switching to green procurement. Requests received by large companies and entities due to political ties to the government may not fully encourage green innovation (Chiappinelli & Seres, 2024).

Political changes in government ministers and local unit leaders may significantly negatively impact companies and entities that deal with the government in green public procurement (Similä & Mwesiumo, 2024). The shift and change in political power would lead to an expected and potential change in the implementation of green public procurement policies, especially preferential policies in choosing

these partners (Krieger & Zipperer, 2022). Not only this, but also in policies before contracting for green public procurement, such as granting suppliers and contractors in green businesses tax incentives, credit facilities, and investment support subsidies (Cerutti et al., 2016). Political change would reduce these incentives and benefits granted to companies (Rainville, 2017). These companies may need a long time to re-establish ties with the new political leadership, which is vulnerable to failure if there is a significant shift in the policies of the latest political leadership. Another possibility is a change of executives in the senior management of public procurement departments, which could lead to significant uncertainty in the area of contracted or potential contracted work (Alvarez & Rubio, 2015). Companies and investment entities may hedge against the failure of their investments by reducing financing in government investments or requesting compensation and guarantees from the government to confront any potential risks (Braulio-Gonzalo & Bovea, 2020). This, in turn, hampers funding for green public procurement (Uttam & Lann Roos, 2015; Wang et al., 2024).

6. CONCLUSION

Public procurement plays a vital role in designing government policies. In green policies, public procurement can stimulate markets to shift from traditional businesses, services, and goods to green ones. Public procurement accounts for a large portion of government spending, and the financial allocations for public procurement in the budget are huge, which is considered sufficient reason to use them in directing markets and changing the pattern and behavior of consumers towards green, environmentally friendly products.

However, green public procurement is not an easy issue. It poses many challenges that may lead to the failure of green policies in society. The paper concluded that the five challenges mentioned can be overcome by rational management of green public procurement policies. Many parties are involved in the process of implementing green

purchasing policies. Governments and decision-makers must take this into account.

Finally, although green public procurement achieves many benefits at the environmental level and at the level of achieving the best value for money, it may face political risks that must be avoided, whether on the part of the purchasing governments or on the part of companies and large entities that supply businesses, goods, and services to governments.

Green public procurement achieves several advantages, which are referred to in this paper. Still, it faces several challenges, the most important of which is the lack of awareness of the importance of green products and the need to train public procurement workers on the mechanisms of green public procurement, which could constitute points for future research.

The main research limitations regarding green public procurement are as follows. Challenges in implementing green public procurement policies: the research acknowledges that green public procurement is complex and presents numerous challenges that could lead to the failure of green policies in society. Effective management of these policies is essential to overcome these challenges. Lack of awareness and training: A significant limitation is the lack of awareness regarding the importance of green products. Additionally, public procurement workers need to be trained on the mechanisms of green public procurement, which could hinder the effectiveness of these policies. Political risks: The study points out that while green public procurement can yield environmental benefits and achieve value for money, it may encounter political risks. These risks can arise from purchasing governments and the companies supplying goods and services, potentially limiting the implementation and impact of green procurement policies.

For future research, the impact of green public procurement could be an interesting and important topic, as the management of green public procurement and the role of green public procurement on climate change issues.

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