

**REGULATORY DRIVERS SHAPING SUSTAINABLE PROCUREMENT ADOPTION
IN SUPPLY CHAIN MANAGEMENT: A CASE STUDY OF RPPA (RWANDA
PUBLIC PROCUREMENT AUTHORITY)**

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M23B12/116

**A DISSERTATION SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF
PROCUREMENT AND LOGISTICS MANAGEMENT OF UGANDA CHRISTIAN UNIVERSITY**

April, 2026



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APPROVAL.

I hereby certify that this dissertation entitled 'REGULATORY DRIVERS SHAPING SUSTAINABLE PROCUREMENT ADOPTION IN SUPPLY CHAIN MANAGEMENT' has been prepared by TUZA GRACE Reg No. M23B12/116 for examination with my approval and is ready for presentation to the School of Business for Award of a Bachelor's Degree of Procurement and Logistics Management at Uganda Christian University.

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ACKNOWLEDGEMENT.

I would like to first of all highly thank the Almighty God for the opportunity of writing this thesis, for enabling me, equipping me with the grace, knowledge and understanding on how to write and compile it. I would like to appreciate my parents Mr & Mrs Emmanuel and Joyce Ntazinda for their tireless prayers, efforts, support, guidance and love they have put in my education and my lecturers for the knowledge and skills they gave me. I would like to thank my family especially my nuclear family my sisters' Esther, Birungi, Karungi, Faith and my brother Moses for everything, I thank my friends at school and other friends outside UCU for all the support in all aspects, I would also like to thank UCU for the opportunity to study there, the exposure and knowledge that has equipped me for this splendid project.

I would like to sincerely appreciate my supervisor Mr. Duncan Tumuhamyé for being patient with me, guiding me on how to present my dissertation in a better manner, understanding as a lecturer and a parent, and correcting me where I made mistakes. I would also like to appreciate the whole UCU fraternity for the great experience spiritually, morally, academically, socially, mentally and emotionally they gave me.

May God forever bless you all abundantly.

DEDICATION.

I dedicate my report to my parents, Mr. and Mrs. Emmanuel and Joyce Ntazinda, my siblings, Esther, Moses, Birungi, Karungi, and Faith, my friend Deborah Kabatesi, and many others who supported and helped me while I compiled this thesis. It means a lot to me and I highly appreciate their love and efforts.

Abstract

This analysis has explored the regulatory forces influencing sustainable procurement implementation in the management of supply chains with Rwanda Public Procurement Authority as a case study. The research was driven by the increasing level of interest in environmental sustainability, ethical sourcing, and responsible public procurement practices around the world. Regardless of regulatory frameworks in place, most organizations continue to encounter some difficulties in ensuring complete incorporation of sustainability in procurement activities. The aim of the study was to determine the impact of environmental regulations, industry standards and certifications, and public procurement policies on the implementation of sustainable procurement practices.

A cross-sectional research design was adopted which was descriptive and quantitative and qualitative in nature. The employees of Rwanda Public Procurement Authority were used by collecting data using questionnaires, interviews, and reviewing documents. The results have shown that environmental policies cause organizations to move towards greener procurement practices due to the compliance requirements and waste minimization policies. The industry standards and certifications were identified to improve the accountability of the suppliers, the quality of the products, and sustainability. The policies on public procurements had positive effects on decision-making processes as they promoted the use of cost-benefit analysis that takes into consideration environmental and social concerns.

Nevertheless, the research also found the following challenges to be limiting the technical capacity, resistance to change, lack of training, and resource limitations that impede the implementation process. The analysis came up with the conclusion that the regulatory drivers are critical in facilitating the adoption of sustainable procurement, albeit with their effectiveness resting on effective enforcement mechanisms, institutional preparedness, and stakeholder commitment.

The research suggested that there should be a reinforcement of regulatory enforcement, better staff training, better technological preparedness, and enhancing awareness of sustainability principles among procurement professionals. Such steps would raise sustainable procurement practices and lead to the long-term economic, social and environmental development.

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CHAPTER ONE

1.1 INTRODUCTION

The growing emergency of global environmental and social issues like climatic change, resource exhaustion and unethical labor practices has made sustainability the key feature of business strategy and operational decision-making. Companies can contribute to sustainability most effectively by their procurement strategies, especially when these involve supply chains covering various geographies, legal systems, and interests of stakeholders. The practice of sustainable procurement, which mainly incorporates the environmental, social, and governance (ESG) standards into the purchase process, has therefore become a crucial element of sustainable supply chain management.

Government regulations are in the forefront in influencing sustainable procurement through standards and structures that ensure that sustainability is a component of procurement decisions. They are also capable of generating such challenges as compliance costs or complexity in divergent regulations. Finally, these laws are meant to use both governmental and individual buying capacity to achieve sustainable economic development, environmental conservation, and societal wellbeing. The government standards, e.g., the European Union, Green Public Procurement standards, the US Federal Acquisition Regulations on sustainability, and the national policies, e.g., the Rwanda, Sustainable Public Procurement Policy Framework, have been established to improve green supply chains.

Nevertheless, although corporate sustainability obligations and stakeholder demands have led to the emergence of sustainable procurement practices, regulatory frameworks have become more stable and enforced as the most reliable approach to induce adoption in industries. Governments, intergovernmental, and regional trade blocs have started to adopt policies, directives and legal requirements that aim at entrenching sustainability in procurement and supply chain operations. Regulatory interventions, including the Green Public Procurement (GPP) policies of the European Union and national due diligence regulations like the Supply Chain Due Diligence Act of

Germany (2023), are redefining the way organizations conduct supplier selection, risk management and performance evaluation.

Regardless of this regulatory movement, the application and realization of sustainable procurement strategies differ greatly in terms of sector, geographical region and organizational size. According to this variance, though regulations offer a framework, they are usually mediated by other contextual issues like the institutional capacity, enforcement mechanisms, industry norms, and corporate governance structures. Besides, in others, regulatory pressure can result in a symbolic compliance or greenwashing instead of real sustainability gains.

Finally, this research proposal critically examines how and why regulatory drivers determine how sustainable procurement practices are adopted within supply chain management. Its purpose is to explore the impact of various regulatory tools that are required by law, those that are voluntary, organizational procurement policies and policies related to international agreements on organizational behavior and decisionmaking in procurement. Moreover, the paper will look at how these regulations encourage or limit sustainable procurement in various contexts of the supply chain.

This study aims to address a gap in the current literature, which is critical, as it will help provide a more nuanced view of how policy interventions can be converted into the procurement practices at the ground level and how these practices influence the overall sustainability objectives in the supply chain.

1.2 BACKGROUND OF THE STUDY

Governments across the world are implementing various policies that are intended to drive procurement activities towards sustainability goals to attain wider sustainable

development objectives. Regulatory drivers which include legislation, standards and mandatory guidelines which mandate companies to implement sustainable procurement in order to ensure that negative environmental and social impact is minimized. These regulations are changing procurement into a strategic tool to manage sustainable supply chains, rather than a cost-driven practice as it was previously.

The available literature has revealed that the use of these practices is always affected by different factors that include organizational leadership, pressure of stakeholders, the cost-benefit analysis, and supply chain collaboration (Ghadge et al., 2020; Brandenburg et al., 2019). Of these drivers, regulatory frameworks have proven to be especially influential in procurement behavior. As an example, the advent of corporate strategies based on the sustainability of procurement and the supply chain has been greatly influenced by the introduction of environmental and labor-related compliance laws in the European Union and beyond (Ankrah et al., 2022; Appolloni et al., 2023). Procurement Magazine; and, in Ghana, Work by Afful (2023) also finds that regulatory requirements are a major buffer to the relationship between sustainable procurement and firm performance, showing that legislation can either amplify or reduce sustainability results based on the internal fit of the firm. Moreover, a comparative analysis of sustainable public procurement in Brazil and Sweden reveals that institutional forces including organizational change management practices that meet the needs of a particular local system of governance are pivotal to effect SPP transitions, yet research is confined to individual-country settings.

Research on South African SMEs indicates that environmental laws can encourage the use of Green Supply Chain Management (GSCM) to comply with them, but the cost of high certification may hinder the practice in certain industries. In Ghana, the positive impact of sustainable procurement practices on sustainability performance of firms is enhanced by regulations to a greater extent. In the same vein, in other sectors in Ghana, the compliance with business regulation moderates and sometimes hinders the favorable effect that sustainable supply chain practices have on operational performance unless accompanied by a robust corporate sustainability culture. Moreover, the case of the beverage production industry in Zambia suggests that external

factors, such as international environmental demands and governmental regulations, supplement GSCM implementation but are balanced by internal factors, such as financial and ineffective integration of the suppliers.

The literature in the public sector also highlights how government procurement policies, and harmonized certification and traceability systems facilitated by regulation can lead to sustainability throughout global supply chains, as well as highlighting the difficulty of achieving consistent standards and technological harmonization. Hueller et al. (2024) proceeded to present a multi-tier supply chain transparency platform that is collaborative and that includes content-level ESG visibility implying that transparency using technology may be a hitherto untapped enabler in regulatory settings.

1.3 STATEMENT OF THE PROBLEM.

Although regulatory frameworks are acknowledged to play a major role in ensuring sustainable procurement, the implementation of sustainable procurement practices in the supply chain management has been minimal, in great part because of the disconnect between regulatory frameworks and the practical implementation. Despite the introduction of several regulatory drivers to advance sustainability, including national legislation, international standards, and industry-specific mandates, their efficiency is often undermined by ineffective enforcement of these regulations, their scope, and inconsistent implementation through multi-tiered supply chains. Empirical analysis of supply networks in the EU, e.g. indicates that although only 8.5 percent of firms report first-tier risks, more than 99 percent of the firms have risks in third-tier suppliers, explaining the weakness of compliance window dressing.

Moreover, in developing nations and low-to-middle-income nations, such as SubSaharan Africa and Southeast Asia. Institutional weaknesses, lack of technical capacity, financial/resource constraints, incorporating regulatory requirements in the face of competing operational priorities, and poor alignment of stakeholders are only some of the challenges that organizations may encounter and act to reduce the power of regulatory instruments further. The studies also point out that the public procurement agencies in Zimbabwe and Botswana have further challenges that include poor procurement culture, change resistance, and misalignment of stakeholders that limit

their ability to meet the requirements of regulatory demands. This study aims to investigate and explain the degree to which regulatory strategies are effective in defining sustainable procurement adoption within supply chain practices in filling a key gap in theory and practice.

1.4 PURPOSE OF THE STUDY

research is aimed at examining how the process of adopting sustainable procurement can be affected by the regulatory drivers in the framework of supply chain management. Although the sustainability concept is gaining more and more attention, the gap in comprehending how regulatory requirements are conceptualized and put into practice by organizations still exists. This research will fill this gap by critically analyzing how regulatory mechanisms can influence procurement decision making and the role of regulatory mechanisms in the promotion of sustainable supply chain practices in different sectors.

1.5 OBJECTIVES OF THE STUDY.

1.5.1 General Objective.

To assess the efficiency of regulatory drivers in sustainable procurement in supply chain management.

1.5.2 Specific Objectives.

1. To test how environmental regulations affect the adoption of sustainable procurement.
2. To determine how industry standards and certifications can affect adoption of sustainability goals in procurement strategy.
3. To examine the impact of the public procurement policies on the cost-benefit analysis.

1.6 RESEARCH QUESTIONS

1. 1: How effective are environmental regulations in determining the uptake of sustainable procurement practices by organizations in the management of supply chains?

2. Which impact do industry sustainability standards and certifications have on integrating sustainability goals into procurement strategies?
3. How do public procurement policies influence the cost-benefit considerations of organizations implementing sustainable procurement practices?

1.7 RESEARCH HYPOTHESIS.

H1: Direct Effect of Regulation:

Supply chains that have stronger regulatory pressure have a higher adoption of sustainable procurement practices.

H2: role of Enforcement:

Regulatory pressure is better the more the enforcement mechanisms (e.g., penalties, audits) are high and uniform.

H3: Role of Policy Support & Internal Capabilities:

The regulatory influence on adoption of sustainable procurement is more effective when regulations are explicit and complemented by incentives or guidelines since they assist firms to develop internal capabilities necessary to implement the regulations.

1.8 JUSTIFICATION OF THE STUDY

Sustainable procurement is now a vital concern in the area of supply chain management (SCM) as the world focuses more on environmental sustainability, ethical sourcing, and corporate responsibility. Organizations around the globe are subjected to an increasing set of regulations to make sure that the latest sustainable practices are implemented in their operations, but little is known about the regulatory forces behind these implementations. The study will be of critical importance since it seeks to determine and assess these regulatory influences in the context of dealing with the issue of unevenly incorporation of sustainable procurement amidst regulatory pressures. Knowledge of these drivers will see the companies obey the law and prevent the occurrence of legal and reputational risks. Also, this study addresses a void in the body of literature because it concentrates on external institutional pressures as a motivator to sustainable procurement practices, specifically through a supply chain lens as

opposed to internal or market-based influences. The study is timely, particularly in the face of growing regulatory demands like the EU Green Deal, the carbon disclosure requirements, and national sustainability policies that are being implemented across the world. The research can be used to add to the existing academic and industrial literature on how regulations can be used to promote sustainability in supply networks by aligning the study with these changing policy frameworks.

The novelty of this study is in its emphasis on regulatory processes an area that has been poorly researched, in comparison with market or social drivers and its effort to mediate between the policy and procurement practice. The study will generate both theoretically insightful and practically applicable ideas by exploring how regulations are interacted with procurement decisions throughout the supply chain. The study can be helpful in developing effective strategies of sustainable supply chains by illuminating on the regulatory mechanisms. Finally, it offers a basis of improved regulatory frameworks and organizational reactions, getting more responsible procurement decisions. This renders the study indispensable to both the academic and practical practice in sustainable supply chain management.

The study will have a mixed-method approach, which is a blend of qualitative insights with quantitative data, to achieve a broad scope of understanding of the regulatory drivers in action. The results should guide policy-makers, procurement managers, and supply chain leaders on how to design, implement and respond to regulatory interventions that seek to enhance sustainable procurement.

1.9 SIGNIFICANCE OF THE STUDY.

The research can be useful in informing policy makers about the best legal and policy tools that can be used to promote sustainability among supply chains, as the research has revealed that regulatory frameworks have a strong impact on sustainable procurement adoption. It is able to inform the formulation of more specific and enforceable sustainability policies that reconcile the interests of development and environmental conservation. The results can also be used to advocate the inclusion of sustainable procurement in national development strategies and laws on national procurement.

To supply chain and procurement professionals, the study indicates the way procurement strategies and operations are influenced by external regulatory pressures. It provides valuable advice on how companies can fit their procurement activities to the new regulatory requirements to remain compliant and enhance sustainability performance. The research can also assist in formulating internal procurement policies that can foresee and react to the trend in regulations.

The research is important to the existing body of literature in sustainable supply chain management because it has covered a relatively under-researched field that is the impact of regulatory drivers on procurement behavior. It provides a baseline on which future studies can be conducted and also assists in the creation of better theories on sustainability in supply chains. It can also be applicable in educating students in fields such as sustainability, public policy, or in supply chain management.

1.10 SCOPE OF THE STUDY.

1.10.1 Geographical Scope

This study focuses on regulatory factors influencing the adoption of sustainable procurement in East African Community (EAC) countries, with Rwanda as the main case. It examines national and local procurement laws, policies, and practices especially since Rwanda's 2024 Sustainable Public Procurement (SPP) Framework. The research highlights initiatives such as Green Procurement Guidelines, the Umucyo eprocurement system, and projects funded by the Rwanda Green Fund (FONERWA), including eco-parks and electric mobility. Comparative insights from Kenya and Uganda will help place Rwanda's progress within the regional context, considering EAC harmonization efforts.

1.10.2 Content scope

This paper will be concerned with the role of regulatory factors in the adoption of sustainable procurement in the supply chain management. It will also look at environmental, labor, health and safety, public procurement, and sustainability reporting laws and policies and the ways in which they influence procurement operations such as the selection of suppliers and contract management. The study will dwell on the response of organizations particularly those in the manufacturing, logistic,

construction, and government industry to these regulations, the challenges they encounter and the support mechanisms. Although the primary emphasis will be on regulatory drivers, other aspects such as technology and finance will be only addressed in case of a direct connection to legal or policy mandate.

1.10.3 TIME SCOPE

This paper will discuss the decade between 2015 to 2025 where the world and individual countries have been making significant moves to incorporate sustainability in procurement by changing the regulations. The origin can be linked to the introduction of the UN Sustainable Development Goals (SDGs) in 2015, which had an impact on such countries as Kenya to implement sustainability-oriented policies. It is also characterized by such events as the COVID-19 pandemic that revealed the susceptibility of supply chains and highlighted the need to have a resilient and ethical procurement. This time period of 10 years gives the opportunity to analyze thoroughly the development of regulatory frameworks and their impact on procurement practices. Relevant precedent can refer to earlier legislation or the trends in the future.

1.11 CONCEPTUAL FRAMEWORK.

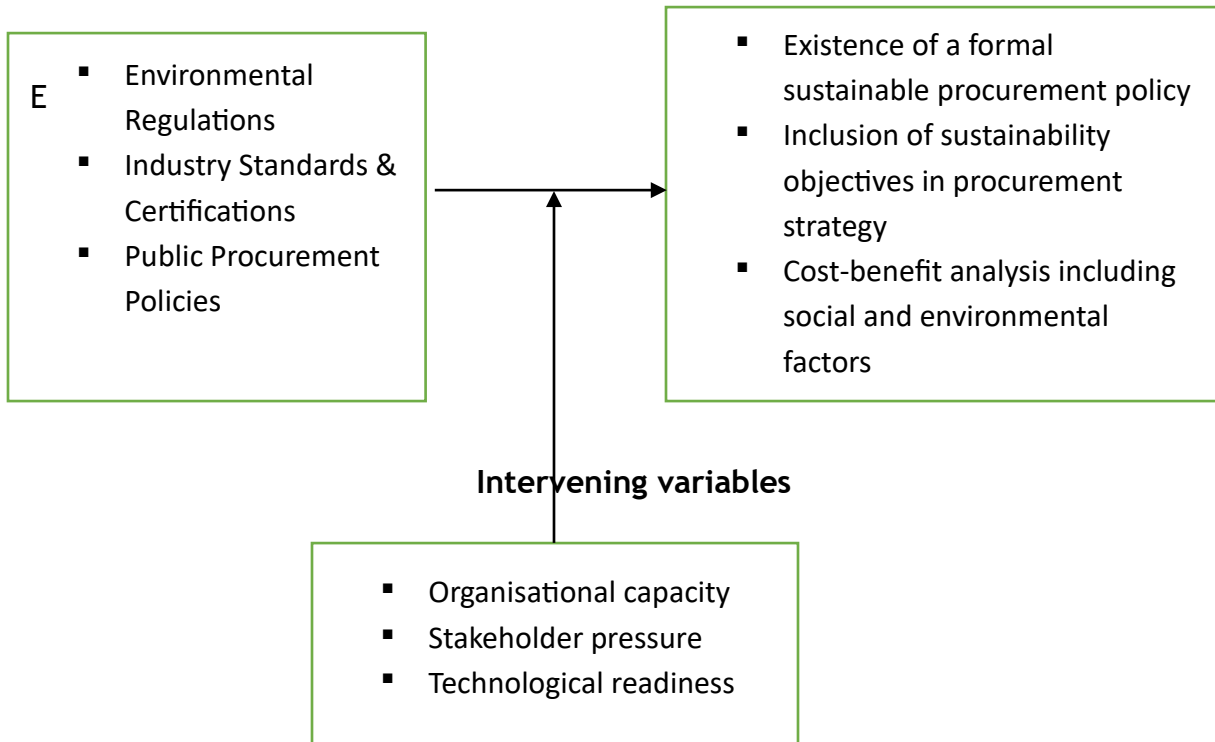
The conceptual framework will illustrate the relationship between regulatory drivers (independent variable) and sustainable procurement adoption (dependent variable). It will also consider intervening factors such as organizational capacity, stakeholder pressure, and technological readiness that may influence this relationship.

Independent variables

Dependent variables

Regulatory Drivers

Sustainable Procurement Adoption



According to the conceptual framework, the independent variable is Regulatory drivers that is environmental regulations, industry standards & certifications and public procurement policies and the independent variable is sustainable procurement adoption that is existence of a formal sustainable procurement policy, inclusion of sustainability objectives in procurement strategy and cost-benefit analysis including social and environmental factors. There are also intervening factors such as organisational capacity, stakeholder pressure and technological readiness. The study is to assess the effect of regulatory drivers shaping sustainable procurement adoption in supply chain management.

CHAPTER TWO.

LITERATURE REVIEW.

2.0 INTRODUCTION.

The chapter is a review of literature available in regard to regulatory drivers that influence adoption of sustainable procurement in the supply chain management. It analyses theoretical and empirical perspectives on the effect of laws, policies and industry standards on the procurement behavior and sustainability performance

between organizations. It is based on the key theoretical frameworks such as the Institutional Theory to explain the effect of external conditions on the organizational behavior such as government requirements and social expectations and the ResourceBased View (RBV) that highlights how internal resources and capabilities transform the regulatory requirements into action.

The review also builds on the world and regional research to explore the impact of various types of regulatory interventions like environmental regulations, sustainability certifications, and government procurement policies on procurement procedures. Through the synthesis of developed and developing contexts, the chapter finds key patterns, opportunities and challenges in the implementation of sustainable procurement practices. It also demonstrates the lack in the current literature, particularly the lack of knowledge on how the regulatory frameworks are connected with the inner organizational competences, technological readiness, and market situation to impact the adoption outcomes.

Finally, the chapter delivers the conceptual framework of the study by bringing together the theoretical and empirical knowledge to explain the impacts of regulatory mechanisms on procurement decisions, involvement of suppliers and sustainability of the supply chain in general. The following are three key objectives that will be discussed under these themes based on the environmental regulations, industry standards and certifications and finally under the scope of the policies on the public procurement namely costs, compliance and performance outcomes.

2.1 THEORETICAL LITERATURE REVIEW.

Sustainable Procurement has emerged as an important approach in supply chain management to incorporate the environmental, social and economic aspects into purchasing decision. Regulatory drivers in the adoption of sustainable procurement practices are usually very powerful in that they involve laws, policies, standards and guidelines that require organizations to take into consideration sustainability requirements in their procurement practices. The Sustainable Public Procurement (SPP) Policy Framework and its approval in October 2024 is a Landmark in Rwanda. The framework is a commitment by the public institutions to address the environmental and

social aspects and price and quality in their procurements, in line with the Rwanda Vision of 2050 and the International commitments such as the SDGs and the Paris Agreement. The policy will encourage the creation of green markets, local industries, and innovation and reduce waste and pollution by focusing on environmentally friendly products and services (RPPA, 2024). Although there are sound regulatory frameworks in places like European union, the extent of adoption and compliance is diverse with regard to the local enforcement and organisational environment. A weak implementation and fragmented policies in certain developing nations make it difficult to implement sustainable procurement.

One of the prominent theoretical lenses applied to explain the effects of regulatory drivers on sustainable procurement adoption is institutional theory. It classifies external pressures as coercive, normative and mimetic. The Coercive pressures entail formal rules and governmental regulations that organizations have to follow. Normative pressures are based on social norms, and professional standards defining what is required as sustainable behaviors. Mimetic pressures are those which come about as organizations copy best practices of top performing companies in an attempt to acquire legitimacy and competitive advantage. The SPP policy of Rwanda is a good example of coercive pressure by laying down mandatory standards of government procurement. As an example, government buildings must now eliminate single-use plastic bottles, switching to reusable ones as of July 2025, which illustrates how policy requirements are converted into practice and affect market supply and demand towards sustainability (Uwigeneye, 2025). This theory assists us in understanding the interplay between these external regulatory and social pressures and the internal factors of organization, in influencing their uptake of sustainable procurement practices.

The other well-known theoretical framework that supports the understanding of the regulatory drivers to influence the adoption of sustainable procurement under the umbrella of the supply chain management is the complementing Institutional Theory, the Resource-Based View (RBV) dwells on internal organizational resources and capabilities that are required to implement the adoption of sustainable procurement

successfully. Although external motivation is brought by regulatory drivers, organizations need to have or build the corresponding expertise, cultures, and stakeholder engagement capabilities to be aligned with these requirements. The combination of Institutional Theory and RBV implies that only regulatory drivers cannot guarantee adoption, but internal preparedness and mobilization of resources must also be viewed as critical components. Such a strategy makes sure that organizations do not just do it because of the pressure and are able to achieve sustainable procurement results internally. The combination of RBV and institutional theory hence justifies the twin requirements of regulation directives and the organizational preparedness in propelling sustainable procurement (RPPA, 2024).

Although there are regulatory frameworks, sustainable procurement has a number of constraints that limit its adoption. The realization of sustainable procurement objectives may be limited by misfitting regulations with national economic priorities, poor enforcement, and limited resources. In Rwanda, there are activities underway to make it fair by promoting local content through hiring of local workers and use of local products as well as protection of the environment and social standards in the implementation of projects. As an illustration, the construction of infrastructure is overseen to prevent the negative effects on communities, and the contractors to which the government contracts are given must comply with stringent environmental regulations (RPPA, 2025). These issues highlight the difficulty of implementing regulatory frameworks into viable sustainable procurement practices on the ground.

2.2. Empirical literature review.

Empirical studies of sustainable procurement show that regulatory drivers play an important role in the implementation of sustainable procurement in different environments and they influence the procurement choices of organisations to be sustainable. Recent works are on the regulatory frameworks that exert compulsory compliance pressures otherwise known as coercive pressures that shape procurement practices to become environmentally and socially responsible. To illustrate this point, Cantele and Zardini (2020) looked at small and medium enterprises (SMEs) operating in the industrial sector across Europe and found that the regulatory demands may be a

low threshold and that a normative pressure on firms may encourage them to go beyond the minimum requirements. Nevertheless, they observed a conflict between the aim of sustainability and market competitiveness, particularly in small companies with greater financial limitations (Chang et al., 2024).

Empirical evidence in Kenya supports the idea that regulatory drivers aid in adopting sustainable procurement and enhance organizational performance. Omwange et al. (2025) implemented a research in Kisii County and found out that sustainability in sourcing, supplier sustainability evaluation, and contract management and eprocurement infrastructure affected the performance of state corporations in a positive way. The implementation of supplier sustainability assessment based on national procurement regulations led to transparency and accountability, and has led to a greater value of money and less conflict in government procurement. These findings suggest that regulatory frameworks that support the sustainability requirements in supplier evaluation have important roles in contributing to operational success and even compatibility with the general development plans.

To illustrate, Sustainable Public Procurement (SPP) Policy Framework, which is implemented in Rwanda in 2024, can show the empirical influence of regulatory drivers directly on procurement behavior. Preliminary evaluations indicate that the policy that has its mandatory aspects, such as the emphasis on local and eco-friendly products and the removal of plastic usage in governmental bodies, has caused the procurement organizations to re-structure the process of supplier and contractual terms selection in order to meet the environmental and social objectives (RPPA, 2024). In addition, internal competencies have been increased through the policy-related capacity-building activities, which have simplified it to obey compliance and innovate in making sustainable procurement decisions (Uwingeneye, 2025). These developments show the ability of regulatory drivers not merely to enact minimum standards but also to facilitate organizational learning and develop resilience in the supply chain.

Within European countries, the extensive regulatory regimes on green public procurement (GPP) offer a mature empirical context. As demonstrated by Lagstron (2025) there is positive correlation in environmental performance and the sphere of

innovation in national procurement of the public sector associated with the implementation of GPP frameworks by EU member states. An example is that GDP policies in Sweden have been effective to integrate the demand of life-cycle cost assessment and eco-labels in the tenders of government projects, which have led to measurable carbon emission and resource consumption mitigation (Lagström, 2025). The other obstacles that have been found in the empirical evidence are inconsistent enforcement and low supplier willingness which influence the rate and successful implementation of sustainable procurement in the different member states.

Together, these empirical observations indicate that although regulatory drivers are important enablers of sustainable procurement adoption, their effects are mediated by other related factors like organizational abilities, market forces and policy consistency. In addition, various adoption outcomes are based on the interaction of coercive rules, normative expectations of the stakeholders, and internal preparedness. The case of Rwanda and European nations has demonstrated that the context-specific regulatory frameworks correctly aligned can lead to major steps towards sustainability in supply chains.

2.2.1 How environmental regulations influence the adoption of sustainable procurement.

Green procurement practices have been a major force pushing businesses to embark on environmental awareness in an attempt to ensure that goods and services they acquire have the least negative effects on the environment. Such regulations drive companies towards green procurement, buying products and services that reduce waste, pollution and energy use by making organizations consider the environmental impact of their purchasing decision. Research on listed firms in the Nairobi Securities Exchange, such as, demonstrates that green procurement does not only improve the environmental performance, but also enhances the performance of supply chains in terms of cost reduction and improvement of customer relationship (Yan, Chen & Jia, 2024). Nonetheless, employee training, limited resources and resistance to change are all obstacles that have significant impediments, especially in small and medium

enterprises and that have to be overcome in order to implement the changes successfully.

Another focus of the literature is that green procurement is a subset of larger environmental management initiatives that promote waste and energy minimization, lifecycle eco-efficiency. Integration of the supply chain and eco-efficiency is achieved through joint supplier interaction and application of innovative technologies, such as e-procurement. In general, green procurement practices are very effective in improving efficiency and firm sustainability in the supply chain but they need high commitment by the leaders and organizational integration. The field of future research is suggested to investigate the influences on the implementation of green procurement in various industries and a more extended economic environment than the NSE.

Over the past few years, the importance of Environmental, Social, and Governance (ESG) principles to company strategy has increased as corporations are pressured by investors, customers, and regulators to be responsible. What started as an emphasis on environmental conservation, has grown to be a holistic model that equally considers social well-being and good corporate governance (Yan, Chen & Jia, 2024). In the framework of logistics and supply chain management, ethical behavior, transparency, and sustainability performance in the long term are increasingly measured using ESG (Zheng, Chen and Zheng, 2024). The change is very much in line with the aims of the circular economy which aims to decouple growth with depleting resources by reusing, recycling, and regenerating materials (Anumula et al., 2024). Integrating ESG and circular economy strategies enables organizations to transform ideal to a tangible, practical activity of sustainability. Nevertheless, even with this correspondence, there is a paucity of studies on the application of ESG and the principles of the circular economy in procurement and logistics decisions particularly in the context of assessing third-party logistics providers (LSPs).

There is also a change in the nature of strategic sourcing. Previously, it was primarily about cost-reduction, but today, it includes the concept of sustainability, ethics, and risk management in decision-making (Lou, You & Xu, 2024). This more general strategy assists businesses in choosing partners that do not only match financial objectives but

also social and environmental principles. One of the best-known instruments to do so is Multicriteria Decision Analysis (MDA), which enables decision-makers to consider various sorts of criteria economic, environmental, and social at the same time (Khulud et al., 2023; Hosseini Dehshiri, 2025). The Analytic Hierarchy Process (AHP), Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) and fuzzy decision models are structured objective ways to compare suppliers. By integrating ESG requirements in these models, the outcome is an improved and sustainable sourcing process. However, there is still a lack of empirical studies that use MDA frameworks with ESG factors especially in different industries such as pharmaceuticals and in the developing economies where sustainable procurement is still developing.

Logistics Service Providers (LSPs) also have the center-stage in the actualization of the sustainability aspiration of a company given that the range of their operations of transportation and warehousing to inventory management directly influences the energy consumption, emission levels, and the outcomes of social responsibility. Past research indicates that LSPs could achieve significant positive impacts on the ESG performance of their clients in case they embrace greener logistics practices, including fuel efficient fleet, optimal routes, and equitable labor procedures (Lieb and Lieb, 2010; Martinsen and Bjorklund, 2012). But much smaller or less developed LSPs tend to be unable to live up to these expectations since they have little financial and technological resources. Using an MDA-based sourcing strategy with ESG and circular economy principles would provide an equitable and transparent method of assessing these suppliers, incentivize the best, and motivate others to achieve better results. As an illustration, in industries where quality, compliance, and sustainability is paramount like in Brazilian pharmaceutical industry, this strategy assists companies to make sourcing decisions that enhance their competitive advantage as well as their social and environmental obligations. Finally, the implementation of ESG in sourcing using systemic decision models not only improves the selection of the suppliers but also generates long-term value to the stakeholders and society.

2.2.2 Impact of industry standards/certifications on adoption of sustainability goals in procurement strategy.

Green Public Procurement (GPP) has also become a strategic initiative in generating environmental sustainability in the expenditures in the public sector. GPP enables governments to use their spending capacity to impact market behavior and mitigate the life-cycle effects of goods and services by incorporating environmental concerns into their purchasing decisions. Recent literature places GPP in the center of the sustainable procurement research, complemented by other themes, such as green supply chains and supplier selection (Maqbool et al., 2023). Nevertheless, even with increasing policy focus there remains a large gap between policy aspirations and policy action in most governments. Environmental policies are usually poorly translated into procurement practices due to weak institutional coordination, a lack of capacity, and fragmented governance structures (Grandia and Meehan, 2017; Amann et al., 2022). As a result, researchers experience the necessity of greater integration between top-level sustainability goals and formal governance frameworks which organize procurement procedures.

This is evidenced by an increasing number of studies that underline that the key to effective GPP implementation lies in the clarity and quantifiability of environmental requirements. The use of practical performance requirements like energy-use targets or carbon reduction benchmarks makes procurers concentrate on results instead of dictating what type of technology or material to use (European Commission, 2019). It is not only a method to operationalize the policy objectives but also allows innovation by providing suppliers with flexibility to suggest innovative and environmentally friendly solutions (Testa et al., 2016; Nissinen et al., 2020). As an example, in green building projects, establishing the actual performance goals regarding energy efficiency or reduction of emissions has been a way to streamline the governance structures in line with sustainability aspirations. Environmental goals incorporated into the procurement documentation that include tender specifications, evaluation criteria, and performance monitoring systems have a more powerful connection between policy intention and actual implementation.

Social and relational dynamics in procurement processes are also important. The recent developments in the construction and infrastructure industries show that the

collaboration, transparency, and trust of the procurers and suppliers are essential to achieve high-value and sustainable results (Eriksson et al., 2021). The problem-solving and learning can be shared and sustained through interactive procurement procedures like innovation partnerships and competitive dialogues that enable sustained adaptation across the project life cycle (Uyarra et al., 2014). Moreover, incorporating trust-based systems and benefit-sharing clauses into contracts also boost commitment and responsibility among stakeholders and result in more robust and creative partnerships (Lindblad and Gustavsson, 2021). However, there are still obstacles: insufficient market willingness, constraining assessment procedures, and the unavailability of training in the procurement authorities continue to limit the broader use of GPP (Intereconomics, 2022). In sum, the literature suggests that the success of GPP is in a harmonious mix of policy integration, functional clarity, and collaborative governance, where the ambition to achieve environmental success is accompanied by the institutional and relational capacity.

Sustainable procurement incorporates environmental and social standards in the supplier assessment to foster sustainable sourcing practices that harmonize economic, environmental and social objectives. Among the approaches that are emphasized in the literature are the lifecycle assessments and social audit used as the means of reducing the environmental footprint and ensuring the enhancement of ethical labor standards. Smaller businesses are usually limited in their capacity to manage sustainability policies and resources, whereas larger organizations have more established policies and resources to adopt a proactive strategy. Sustainable procurement practices are difficult without a strong organizational culture and leadership commitment that will drive and embed these practices, affect strategic alignment and employee engagement.

The importance of collaborative supplier relationship management as a key driver to build trust and joint innovations to address supplier resistance and enhance sustainability performance across supply chains is highlighted. Sustainable procurement has motivations such as compliance, demand of eco-friendly products by consumers, competitive advantage, and brand building. However, even with such advantages as

cost savings and resilience, the challenges of increased initial costs and resource constraints still remain. Overall, sustainable procurement is seen as essential for organizational resilience and achieving broader sustainability goals in today's business environment.

2.2.3 Impact of the cost-benefit analysis on the policies of public procurement.

Electronic government procurement (e-GP) systems have become important in enhancing efficiency, transparency, and cost-effectiveness in state procurement, particularly in the low- and lower-middle income countries (LMICs). The existing literature emphasizes the inefficiencies and risk of corruption that comes with traditional procurement process and how the e-GP platforms can help resolve those issues. Research in Kenya, Indonesia and Rwanda shows that e-GP implementation saves on procurement, enhances competition and curbs corruption due to digitization and standardization of the procurement process. Nonetheless, the adoption of these systems is usually impeded by major challenges such as inadequacy of ICT infrastructure, absence of legal and institutional preparedness, and low digital literacy rate of procurement officers. Although the advantages are well-known, a smaller number of studies offer detailed cost-benefit studies that consider the entire lifecycle costs and financial implications on a national scale, particularly in LMIC settings.

It is this gap in empirical investment analysis that is filled in by the current abstract through the measurement of the costs (an average NPV of \$16.7 million) and benefits (as much as 5.2 billion in procurement savings) of e-GP implementation. It shows the impact of such variables as market size, price decrease and system penetration on the return on investment, which is a rare and strong economic argument in favor of e-GP implementation in resource-limited environments. Although previous studies have recognized the practical advantages of e-GP, the current research is important as it provides a significant model of investment feasibility at a variety of income levels, which is an essential evidence gap in policy-making in the context of digital procurement reform.

With the increasing size and complexity of AI applications, cloud infrastructure has become a critical part of handling the computationally intensive task of model training and deployment. Recently, the Oracle Cloud Infrastructure (OCI) has developed into a powerful player in the field, with AI workloads expanding by more than 50 percent in 2025 (VentureBeat, 2025). OCI positions itself as a highperformance platform with high-speed networking, performance-centric clusters of GPUs, and reduced infrastructure costs as compared to the offerings of larger providers such as AWS, Azure, and Google Cloud. In the literature, it is emphasized that the successful implementation of AI is determined by the extent to which the infrastructure level of performance, including latency, throughput, and scalability, is aligned with business objectives of speed, flexibility, and innovation (Maqbool et al., 2024).

Recent reports compare OCI AI performance to other cloud providers, basing the comparisons on such metrics as GPU usage, latency, and total cost of ownership (TCO). Findings indicate that OCI provides reasonable performance and can even reduce the costs of operations, but the overall efficiency is determined by the type of workload and optimal use of resources (Oracle, 2024; Zhao et al., 2025). Researchers also emphasize that it is crucial to consider such hidden costs as data egress, idle GPU time, and management overhead, which make a substantial impact on the return on investment (ROI). As seen in models such as the Cosmos (ArXiv, 2025), realistic costperformance analysis in an AI cloud setting requires balanced analysis using both performance and financial measurements.

Business-wise, selecting an appropriate cloud infrastructure to use AI has now become a strategic move. According to an IDC report (2024), entities implementing OCI have utilized it to attain almost 400% ROI in five years, indicating its possible economic benefit. Nevertheless, to get the most of such gains, the alignment of workloads, the management of resources, and occasionally hybrid or multi-cloud strategies are essential to prevent vendor lock-in (Zheng et al., 2024). Generally, existing sources indicate that OCI represents an attractive trade-off in terms of performance, scaling,

and cost-efficiency, which is why it can be a viable solution to enterprises that need to implement AI at scale, yet regulate the expenses.

CHAPTER THREE.

METHODOLOGY.

3.1 INTRODUCTION.

This chapter explains the approach that was adopted to examine the regulatory drivers that affected the implementation of sustainable procurement in supply chain management based on the Rwanda Public Procurement Authority (RPPA) as a case study. RPPA offers a suitable framework that can be used to investigate the influence of regulatory frameworks on sustainable procurement processes in the public sector.

The chapter identifies the research design and approach that was followed in the study and how data was gathered among the selected participants in RPPA and how the data was analyzed. It also points out the ethical concerns and actions that were undertaken to guarantee reliability and validity. All in all, this chapter gives a vivid explanation of the process of conducting the field research and how valid results were obtained in my study.

3.2 RESEARCH DESIGN.

The research design was the descriptive cross-sectional type of study. This design was aimed at analyzing the impact of regulatory drivers on the implementation of sustainable procurement in the Rwanda Public Procurement Authority (RPPA). A

descriptive design was appropriate since the intention of the study was to comprehend and describe what is actually occurring at RPPA regarding sustainable procurement like the existing regulations, how the staff learned and implemented them, and the obstacles they encounter. The design did not need any manipulation of variables, experiments or complicated procedures and so was realistic research in a large government organization such as RPPA.

In collecting the clear and detailed information, the study primarily relied on the structured questionnaires, which were distributed to procurement officers, compliance staff and other employees of RPPA, who participated in procurement activities. Some of the major areas targeted by the questionnaire included awareness of the sustainable procurement regulations, perceived regulatory pressure, adoption level, capacity issues, and RPPA support. The decision to use questionnaires was feasible enough since they accessed a significant number of respondents simultaneously, were easy to fill out considering that government workers are very busy, and generated data that was easily analyzed and interpreted.

The key-informant interview with one of the senior officials who was in direct contact with the regulations of procurement and the implementation of the policy was included in the study as the findings were enriched. This interview helped the researcher to collect more information on the regulatory factors, institutional interests and implementation issues that would not have been clearly described by use of questionnaires only. By restricting the number of interviews made the study manageable and the data better and more in-depth.

In general, this descriptive research design was feasible, and suited to the use in RPPA. It allowed gathering of powerful, in-depth data using realistic and time-saving approaches, which allowed the study to capture the clear and accurate image of the influence of regulatory drivers on sustainable procurement adoption in the Rwandan public sector.

3.3. AREA OF STUDY.

This research was done within the Rwanda Public Procurement Authority (RPPA), in Nyarugenge district, Kigali city, Rwanda. It is a government regulatory agency charged with the responsibility of regulating, coordinating and professionalizing government procurement among government institutions. RPPA has the mandate of formulating procurement policies and regulations, overseeing adherence, undertaking audit, capacity building among the procuring entities, as well as transparency and value of money in government expenditure. Being the key body that determines the procurement practice in the country, RPPA has a high role in influencing the introduction of sustainability principles in the Rwandan government supply chains. The most significant departments within it located in Kigali City had departments that were relevant to the research such as policy and legal affairs, monitoring and audit, capacity building and procurement compliance departments.

RPPA was chosen as study area because it has a direct impact on regulatory frameworks that propel adoption of sustainable procurement in management of the public supply chain. The authority offers the availability of knowledge professionals like procurement officers, policy experts, and auditors who have valuable experience on regulatory processes and sustainability initiatives. Moreover, RPPA has well documented records such as compliance reports, procurement guidelines, and sustainability-focused policy tools that ensured it was the best place to derive data on the effect of regulatory drivers on procurement behavior. Its strategic position in terms of pursuing national sustainability objectives such as green growth and responsible use of resources only helped enhance the significance of it as the center of interest in the research.

3.4. SOURCES OF INFORMATION.

In order to develop a coherent image of the effects that regulatory measures have on the implementation of sustainable procurement, the research was based on the primary and secondary information sources. Primary data was gathered on site at the Rwanda Public Procurement Authority (RPPA), which is the main body that prepares procurement regulations, oversees their adherence, and enhances best practices among the state agencies. Structured questionnaires were used to collect information by

administering them to procurement officers and regulatory personnel and conducting key informant interviews with top officials in policymaking. These respondents could provide first hand information on regulatory drivers, institutional practice and on the ground realities as far as integrating sustainability in procurement processes are concerned.

It was the field data that was enhanced with secondary information that gave the broader contextual and theoretical perspective. These sources included RPPA policy documents, annual reports, procurement manuals, and national procurement laws, the academic literature on sustainable procurement, regulatory compliance, and supply chain management. Different sources were adopted and this helped in bringing credibility to the study.

3.5 POPULATION AND SAMPLING TECHNIQUES.

3.5.1 POPULATION.

The target population of the study included employees within the Rwanda Public Procurement Authority (RPPA) who were directly involved in the development, implementation, and oversight of public procurement regulations. These included staff working in policy formulation, compliance monitoring, capacity building, eprocurement management, and general administrative support. Because these teams engage daily with procurement laws, sustainability guidelines, and regulatory standards, they were well placed to provide reliable insights into how regulatory drivers influence sustainable procurement adoption.

Table 3.5.2 Showing target population.

Study Objective	Population Size(N)	Sample Size (S)
1. Examine the effect of environmental regulations on sustainable procurement adoption.	35	20

2. Assess the influence of Industry Standards & certifications upon embracing sustainability objectives in procurement strategy.	30	18
3. Investigate the effect of public procurement policies on cost-benefit analysis	40	22
Total	115	60

Source: Primary data 2025

The target population table above provides a clear overview of the population sizes and the corresponding sample sizes that was needed for each objective. This ensured that the data collected was statistically significant and representative of the entire population at the Rwanda Public Procurement Authority (RPPA). The sample sizes for each objective were obtained using the Morgan’s table, which helped in determining the optimal sample size, which was crucial for the reliability and validity of the research findings.

Population: 35 RPPA staff involved in policy formulation, environmental compliance, and monitoring (Policy & Regulation unit + Compliance Unit).

Sample size: For a population of 35, a sample size of 20 respondents, was needed to gather sufficient information to establish effective measures.

Population: 30 staff involved in capacity building, standard setting, and eprocurement implementation (Capacity development unit + ICT Unit).

Sample size: For a population of 30, the required sample size was 18 respondents, ensuring reliable data collection for the analysis.

Population: 40 staff involved in monitoring, auditing, financial evaluation, and regulatory oversight (Monitoring & Evaluation Unit + Corporate Services).

Sample size: For a population of 40, a sample size of 22 respondents was sufficient to gather information ensuring reliable data collection for the analysis.

Objective	Population size(N)	Sample size (S)	Sampling procedures
Stakeholders	45	35	Purposive sampling
Human resource	20	15	Purposive sampling
Procurement sampling	55	40	Stratified random sampling
Total	120	90	

Source: Primary data 2025

The table shows the breakdown of the study population and relevant sample size of Stakeholders, Human Resource personnel and Procurement officers which are used to explain the reasoning and importance of sampling methodology adopted in meeting the objectives of the research. A sample of 90 out of 120 individuals was chosen to represent a complete population of 120 individuals in which a combination of purposive and stratified random sampling was used to guarantee depth and representativeness. The Stakeholders (35 out of 45) and Human Resource personnel (15 out of 20) were purposively sampled due to their specialized knowledge, direct involvement and experience that were pertinent to the study and therefore represented a valuable source of rich and context specific information that enhanced the credibility and validity of the findings. Comparatively, the Procurement group (40 out of 55) was sampled using stratified random sampling to ensure that all sub-units within the department were well represented and thus lowered the selection bias and increased the generalizability of the findings. The sample size (75% of the total population) was large enough to reduce sampling error and enhance statistical reliability, thus making the data gathered to be both representative and inclusive of the entire population. A combination of these sampling decisions helped to ensure that the study reflected the meaningful perspectives and at the same time, they represented the broader population, which in turn contributed to the validity and usefulness of the study.

Estimation of the Population Size: The population size was determined using the official staff records of the Rwanda Public Procurement Authority (RPPA) which concentrated on the employees who are directly engaged in procurement processes. This gave us a total of 120 people in Stakeholders, Human Resource staff, and Procurement officers.

Applying Morgan Table: Table 1 of the Morgan, Table of Determining Sample Size was applied to find the right sample size of a population of 120. As shown in the table, a sample of about 90 respondents was enough to get reliable results with a 95 percent confidence and a 5 percent margin of error. This ensured that the sample size was scientifically acceptable and statistically representative.

Selection of the Sample Size: According to Table on the determination of the sample size, a total of 90 respondents were used in the study. The sample was chosen equally among the three groups; 35 Stakeholders and 15 human resource personnel through purposive sampling because of their specialized knowledge and 40 procurement officers through stratified random sampling to have a balanced representation of all the procurement sub-units. This method guaranteed the relevance and representativeness in the gathering of data through RPPA.

3.6 DEFINITION OF VARIABLES AND MEASUREMENTS.

Regulatory Drivers are aimed at laws, policies, and official requirements by governments or other regulatory agencies that direct and even compel organizations to behave in a particular manner. These drivers in sustainable procurement motivate organizations to purchase goods and services in a responsible manner through establishing regulations that ensure environmental conservation, equitable business practices, and ethical conduct of the supply chain. The regulatory drivers are usually national legislations, environmental regulations, procurement regulations, industry regulations as well as obligatory reporting requirements that an organization must adhere to in order to be in compliance. To illustrate, a government can have a policy whereby all government-owned institutions are to procure items which comply with certain environmental regulations like energy saving appliances or materials that are produced using recycled material. By so doing, the regulatory drivers influence the way

organizations make procurement decisions and make sustainability a normal practice in the business environment.

Sustainable Procurement Adoption explains the extent to which an organization has gone to put the concept of sustainability in its process of acquiring goods and services. To put it simply, it implies that price and quality are no longer used as the basis to make procurement decisions, but environmental impact, social responsibility and long-term value of the purchased item are taken into consideration. This entails selecting suppliers that uphold ethical business, preferring environmentally responsible products, and making procurement procedures contribute to overall sustainability objectives. With increasing global awareness of the issues of climate change, waste, and unfair labor practices, several organizations are discovering that sustainable procurement is not just a fad, but it is becoming a vital component of the responsible business. In the present day, as a guideline like ISO 20400 and growing stakeholder demands, sustainable procurement is becoming more popular in organizations aiming to mitigate risks, build their reputation, and help to create a more sustainable supply chain.

3.6.1 Measurements.

Presence of an official sustainable procurement policy.

A formal sustainable procurement policy was an indicator used as a basis measure of sustainable procurement adoption. Formal policy proved that a formal commitment to the integration of sustainability into an organization procurement activities. This kind of policy would normally specify the environmental, social and ethical requirements that have to be considered when choosing suppliers and making buying decisions. The presence of a well-stated and actively enforced sustainable procurement policy in an organization means that the aspect of sustainability has ceased to be a mere form of informal awareness and has become a formal and compulsory exercise. Thus, this indicator was used to gauge the level of adoption by evaluating the presence of sustainability principles formally in organizational rules and guidelines. Organizations that had clear up-to-date policies tended to have a greater adoption of sustainable procurement than those with little or no documented policies.

Sustainability Objectives Procurement Strategy.

The fact that the sustainability goals were included in the procurement strategy gave an understanding of the extent to which an organization is taking sustainability in its long-term planning and decision-making. A procurement strategy serves as a guide which determines what the organization purchases, who they purchase it and the conditions under which they do so. Incorporating sustainability goals in the process like carbon emission reduction, supplier diversity, waste reduction or ethical labor practices into this strategy is an indication of a deliberate move to make sustainability a fundamental component of its procurement activity. This indicator assessed the use of sustainable procurement by assessing the extent to which sustainability objectives impacted strategic priorities, supplier evaluation criteria and resource allocation. When an organization has its sustainability goals aligned with the procurement planning, then it shows that sustainability is not a post hoc, but rather a planned and calculated approach. This stage of integration signified a more advanced mode of adoption in which sustainability was integrated into day-to-day decision making, and both short-term and long-term procurement results were influenced.

Cost-Benefit Analysis with Social and Environmental factors.

The application of the cost-benefit analysis, which considered the social and environmental factors, offered a viable and behavioral-based indicator of the adoption of sustainable procurement. Historically, cost, quality and delivery schedules guide the procurement decisions. Nonetheless, sustainable procurement demands organizations to have a bigger picture by considering the long term social and environmental consequences of their purchasing choices. This implies looking at factors of a product like carbon footprint, energy usage, effects on the immediate communities, labor conditions, and waste levels during a product life cycle. When such elements are deliberately incorporated into the cost-benefit analysis, then it demonstrates that the organization is no longer focusing solely on the short-term financial savings but rather it is adopting a more holistic and responsible decisionmaking process. This indicator showed the adoption of sustainable procurement as it indicated whether sustainability has been properly taken into account in the ultimate purchasing decision. Companies

that regularly resort to such thorough assessments are highly committed to sustainability, and the procurement decisions are not merely based on the price factor but also encompass extended social and environmental concerns.

Define Research Objectives.

Coming up with the clearly defined research objectives based on the research questions in relation to the research questions was the first step in the data collection process. These goals informed the rest of the data collection and made sure that the research was dedicated to the regulatory factors that affect the adoption of sustainable procurement at RPPA. Particularly, the research was focused on the identification of whether the RPPA possessed the formal sustainable procurement policy, how sustainability goals are integrated in the procurement strategy, and the degree to which the social and environmental factors are taken into consideration in cost-benefit analyses. Through precise statements of these objectives, the study was able to ensure that all data that was gathered was directly applicable to the measurement of the dependent variable and indicators.

Came up with Data Collection Plan.

A thorough data collection plan was created to describe the methods, tools, sources, and schedule of the field research. The plan indicated the nature of data that was to be collected such as quantitative data through staff surveys and qualitative data through interviews and reviewing documents. It also identified the main sources, including procurement officers, supply chain managers, and policy implementers and the secondary sources including the policy documents of RPPA, the strategic plans, and the official reports. The plan also set out a timeline to administer the questionnaires, interview and review of documents that allowed the data collection process to be systematic, coordinated and efficient.

Chosen Data Collection Methods.

The right data collection techniques were identified to record detailed data on adoption of sustainable procurement. The questionnaires were used to conduct the survey on the procurement and supply chain employees to collect quantitative information on the

presence of formal policies, integration of sustainability goals and the need to address social and environmental aspects in the cost-benefit analysis. A key informant, senior manager and policy implementer was interviewed to gain qualitative information on the enforcement of regulations, decision-making methods, and barriers to the implementation of sustainable procurement.

Data Collection Instruments used.

Instruments of data collection were thoroughly developed to be clear, valid and reliable. There were structured questions and Likert questions in questionnaires to assess awareness and usage of formal sustainable procurement policies, the incorporation of sustainability objectives, and the use of social and environmental factors in cost-benefit analyses. The interview guides contained open-ended questions that enabled the respondents to expound on the policy implementation, strategic integration of sustainability goals, and operational challenges. These tools were used to make sure

Collection of Data.

Questionnaires were administered to the chosen procurement and compliance personnel through purposive sampling method to ensure that all the various roles were represented upon data collection. A senior manager, and policy implementer, were interviewed, to obtain qualitative data. The analysis of the documents was performed simultaneously to identify the traces of formal sustainable procurement policies, the consideration of the sustainability goals in the procurement strategy, and the consideration of social and environmental aspects in the cost-benefit analysis. The data gathered was done in a systematic manner within a scheduled time to guarantee all indicators were covered.

Data Management and storage.

Data gathered was well arranged and stored safely to ensure the integrity and confidentiality. The questionnaire and interview electronic data were kept in password-protected files, and kept in a secure place. Data management was also supported by proper coding and labeling of data, enabling easy retrieval and ensuring that, data is

analyzed accurately. This was done to safeguard the privacy of the participants and ensure that the study was reliable.

Analysis of data.

Appropriate analytical techniques were used to analyze the data collected. The presence of formal policies, integration of sustainability goals, and inclusion of social and environmental factors in cost-benefit analysis were analyzed using descriptive statistics (frequency, percentage, and table) to summarize the quantitative data of questionnaires. Thematic analysis was required of qualitative data, including interviews and document analysis, to find patterns and insights, in terms of regulatory drivers and adoption of sustainable procurement. The discussion gave a holistic view of how the regulations play a role in influencing procurement practices at RPPA.

Report Findings.

Lastly, the results were explained in a clear and reasonable way, evidently connected with all three indicators. The presence of formal sustainable procurement policies, the inclusion of sustainability goals in the procurement strategies, and the use of social and environmental concerns in the cost-benefit analysis were reported successfully. The results were discussed with references to regulatory frameworks, the extant literature, and practical implications of the RPPA, which guaranteed that the research offered valuable insights and practical guidance on how to improve the adoption of sustainable procurements.

3.8. Data Collection Instruments.

In order to be in a position to explore the regulatory forces that dictate adoption of sustainable procurement in supply chain management of the Rwanda Public Procurement Authority (RPPA), the research study embraced various data collection instruments. The quantitative and qualitative methodologies were combined because it was necessary to be certain that particular measurable practices and profound insights were revealed. The following instruments were used:

Surveys and Questionnaires.

Data were collected using surveys and questionnaires because it was easier to gather this type of quantitative information on procurement officers, supply chain managers and other pertinent employees at RPPA. These were closed-ended and structured questions that were targeted to measure the presence of key variables that were of interest in the adoption of sustainable procurement such as the existence of formal sustainable procurement policy, the presence of sustainability objectives in procurement strategies, and the utilization of social and environmental considerations in cost-benefit analyses. The respondents were asked to indicate the rate or the level of compliance with these policies and other questions were aimed at gathering demographic information and work experience in the context of procurement. After sending out questionnaires to a wide and representative group of RPPA employees, the research obtained measurable information on policy awareness, implementation, and policy drivers on procurement practices. This step provided measurable results of the application and effectiveness of the green procurement policies.

Interviews.

This was done through semi-structured interviews with a key informant during the field visit who is one of the senior procurement managers, policy implementers, and decision-makers at RPPA. The aim of the interview was to acquire qualitative information on how regulatory frameworks affect the implementation of sustainable procurement practices, the challenges and opportunities in policy implementation. Open-ended questions enabled the respondents to explain in details the manner in which sustainability goals are integrated into procurement plans, how social and environmental considerations are factored in the cost-benefit analysis and how regulatory controls influence procurement decisions. The interview technique gave detailed and in-depth information that supplemented the quantitative information of the questionnaires which allowed the study to investigate why and how regulatory drivers influence sustainable procurement adoption in practice. This approach also assisted in establishing contextual elements specific to RPPA that might not have been elicited by using structured surveys alone.

Document Analysis.

Document analysis was used to review and analyze existing RPPA documents related to sustainable procurement and regulatory compliance. These are papers that have procurement policy, implementation procedures and records regarding procurement activities. Document analysis was aimed at checking the information gained in questionnaires, and interviews. The study determined the existence of formal policies, documentation and implementation of sustainability goals and how the social and environmental factors are incorporated into cost-benefit analysis procedures through the analysis of these documents. Historical and contextual information was also included in the analysis of documents and this provides us with an idea of how sustainable procurement practices at RPPA have changed over the years.

Secondary Data Analysis.

The secondary data analysis involved the examination of the existing records and reports of RPPA such as annual performance reports, procurement statistics and other organizational reports that reflect compliance to regulations and performance in procurement. This approach gave more quantitative and qualitative data on organizational performance and how regulatory frameworks are effective in developing sustainable procurement adoption. With the help of secondary data, the study could determine patterns and trends that both confirmed and elaborated findings of primary data sources. The approach also ensured the study based on available substantial and official information, which enhanced validity of the research findings.

3.9 DATA COLLECTION METHODS.

The research was founded on primary and secondary data sources to enable comprehensive coverage of the objectives of the research. This approach allowed getting a higher validity and reliability of the findings, as well as having a complete picture of the influence that the regulatory drivers exert on the adoption of sustainable procurement in the Rwandan public sector.

3.9.1 Primary Data

Primary data was collected using personal interviews with the RPPA employees and a selected number of its stakeholders so that first hand data on the regulatory policies, sustainability policies and the procurement practices could be collected. The data provided real-time data on the achievement of sustainable procurement practices and regulation drivers. The main data collection procedures were based on the structured questionnaires and interviews:

Questionnaires: A questionnaire survey was developed and was distributed to procurement officers, the supply chain managers and other interested individuals in RPPA. The questionnaire included closed-ended questions (e.g. Likert-scale questions) to assess compliance with sustainable procurement policies, the frequency by which they take into account the social and environmental factors when developing the cost-benefit analysis, and the awareness of the regulatory requirements, and opened questions to allow the respondents to provide qualitative feedback on the issues and challenges and suggestions to improve it. It also made it possible to collect measurable information on the existence and implementation of the sustainable procurement policies, integration of the sustainability objectives in the procurement policies and the practical application of social and environmental consideration, the key indicators of the dependent variable. The acquired quantitative data were later examined in a descriptive way to identify the trends and relationship between regulatory drivers and adoption of sustainable procurement.

Interviews: One key informant was interviewed and they were a senior manager, policy implementer and a strategic decision-maker of RPPA. The interview has provided qualitative data on the application of the regulatory frameworks in the operations of guiding the procurement processes, implementing sustainability goals, and the difficulties in applying sustainable procurement practices. The free-form of the interview allowed the participant to elaborate on the contextual considerations, decision-making processes and actual experience in life that offered a deeper perspective of regulatory influence that is complemented by quantitative data of questionnaires. The interview also reflected the perceptions and experiences that were

not readily measurable and this served to elucidate the reasons why some policies are successful or experience difficulty in their implementation.

3.9.2 Secondary Data

The secondary data was also collected through the available documents that comprised academic journals, industry reports, organizational documents and official RPPA reports. These sources have provided a background of regulatory frameworks, sustainable procurement practices, performance indicators as well that have helped in supporting, validating and triangulating the primary data. Policy documentation of RPPA and strategic procurement plans were in turn verified to ensure the formal sustainability policy existed and sustainability objectives were included in the procurement strategy. Similarly, industry reports and academic sources were consulted to get a feel of the best practices on the global scale, which would enable comparing the performance of RPPA to the best practices and view the influence of different regulations in a bigger perspective. The secondary data was used to make sure that the research relies on valid and proven information that enhances the results in terms of reliability and completeness.

3.10 DATA PROCESSING AND ANALYSIS.

The research used both quantitative and qualitative data analysis techniques to explain the data gathered in a holistic way:

Quantitative Analysis: Data of the structured questionnaire were statistically analyzed using statistical software. Descriptive statistics (means and standard deviations) were used to summarize the responses of staff with regards to awareness, implementation and compliance with sustainable procurement policies. The analysis has also helped in establishing the magnitude and significance of the regulatory forces and test hypotheses on the effectiveness of the policy, the integration of sustainability goals and social/environmental aspects in the procurement decisions.

Qualitative Analysis: Interviews and qualitative analysis of open-ended questionnaire were analyzed qualitatively. It involved coding the answers and sorting the information by the main indicators of the study: the existence of formal policies, integration of

sustainability objectives and social and environmental concerns. The contextual and organizational conditions in which sustainable procurement adoption occurs, its enablers and challenges were discussed in-depth in this discussion. It was also complemented with quantitative results by explaining the effects of the regulatory drivers on the procurement practises in RPPA.

Combining the primary and secondary data, quantitative and qualitative analysis, the research provided a multi-dimensional view of the regulatory drivers based on sustainable procurement adoption at RPPA. Questionnaires and interviews were used to capture the existing practices and perceptions of the RPPA staff and the review of documents and secondary sources offered contextual evidence and verification. The use of descriptive and inferential statistics and thematic qualitative analysis provided strong, consistent and practical results that are directly related to the research goals of the study.

3.11 Ethical Considerations.

The ethical considerations were viewed as a key element of the study to maintain the integrity, credibility, and trustworthiness of the research, in addition to safeguarding the rights and welfare of everyone that participated in the field research at the Rwanda Public Procurement Authority (RPPA). Since the research was conducted on human subjects who shared their thoughts on the organizational policies and practices, the ethical principles were carefully followed during research. The study was directed by the following key ethical considerations:

Informed Consent.

Every research participant had full knowledge of the purpose, objectives and scope of the research prior to study participation. They were given a clear explanation of what they were involved in, the nature of questions they were being asked as well as the nature of data that was under collection. The participants were also informed on the use of the data and the anticipated benefits of the study. Informed consent was acquired before data collection and all the participants willingly consented to participate in the research and had full knowledge of their involvement in the research.

This procedure contributed to building trust and promoting honest and correct answers and was used to make the participants feel respected and appreciated.

Confidentiality.

To ensure that the privacy of all the participants is taken care of, confidentiality was observed during the study. No data collected was disclosed to any unauthorized person and all data collected such as questionnaires, interview transcripts, focus group notes, and documents were only utilized in research. The password-protected files containing electronic data were stored in a secure place. This was considered confidentiality which is a major consideration in the context of RPPA as participants gave sensitive details on the regulatory compliance, organizational policies as well as some of the challenges involved in adapting sustainable procurement practices. The privacy ensured provided open and candid answers, promoting the validity and reliability of the data gathered.

Voluntary Participation

The study was voluntary whereby the participants were made aware of the fact that they were not obliged to participate in the research and that they could exit the study any time with no repercussions and no ill-effect to their professional lives. This principle was stressed out initially when collecting data, such as when giving out questionnaires, conducting interviews and focus group discussions. With voluntary participation guaranteed, it respected the autonomy of the participants, minimized the possibility of coercion, and created a setting where the respondents felt free to express their true opinions and experiences. This ethical principle was critical especially in the social sector with regard to an institution such as RPPA.

Additional Considerations

In addition to informed consent, confidentiality, and voluntary participation, the study also complied with the wider ethical considerations like honesty, integrity, and respect towards the participants. As a researcher, I made sure that data was reported in the right way, results were not influenced, and the input of the participants was given due credit. All these ethical concerns collectively made the research responsible, the rights

of the participants were safeguarded, and the resulting findings were credible and trustworthy.

3.12 Methodology Overview.

The research design was a descriptive research design where a mixed-method approach was used to investigate the drivers of regulations that determine the adoption of sustainable procurement in the supply chain management in particular the Rwanda Public Procurement Authority (RPPA). The sample population included the members of the procurement officers, regulatory personnel, and policy implementers at RPPA, who were chosen under the purposive sampling, as they have direct contact with procurement regulation and implementation. Primary and secondary data was used and I (the researcher) was in a position to develop an in-depth perspective of the research problem.

Structured questionnaires were used to collect primary data where I was in a position to obtain quantitative data on regulatory requirements, compliance mechanisms and sustainable procurement practices and the key informant interview with a senior official which enabled me to obtain detailed qualitative information. Secondary information was provided by procurement laws, policy documents, and RPPA reports. The data was collected when a formal authorization was received by RPPA, and ethical considerations were made (confidentiality and informed consent).

CHAPTER FOUR.

DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS.

4.0 Introduction.

This chapter contains the data analysis, presentation and interpretation of the results gathered in accordance with the objectives of the study. The analysis was carried out on 90 respondents, which was calculated with Morgan tables. Data analysis was done through descriptive analysis.

The characteristics of the respondents are described and results are given in tables and figures to make it more comprehensible. The findings are reported and discussed based on the three specific research goals:

- i. To explore how the environment regulations impact on the adoption of sustainable procurement.
- ii. To determine how industry standards and certifications play in the adoption of sustainability goals in procurement strategy.
- iii. To examine how the policies of the procurement by the population impact the cost-benefit analysis.

4.1 Response Rate.

4.1.1 Work experience

Another factor in learning the professional background of the respondents is work experience. The work experience of the respondents is as given below in the table.

Table 4.1.2 Work Experience of respondents

Work Experience	Frequency (N)	Percentage (%)
Less than 1 year	8	8.89
1-3 years	28	31.11
4-6 years	16	17.78
7-10 years	22	24.44
More than 10 years	16	17.78
Total	90	100

Source: Primary Data 2026

In terms of work experience, 8 respondents (8.89%) had less than 1 year of experience in public procurement, 28 respondents (31.1%) had between 1-3 years, 16 respondents (17.78%) had between 4-6 years, 22 respondents (24.4%) respondents had between 7-10 years and 16 respondents (17.78%) had more than 10 years working experience within public procurement. The fact that the percentage of the respondents that had a work

experience of between 7 and above 10 years of experience in the field of public procurement showed that there is a stabilized work force with high levels of institutional knowledge, which is useful in the consistency of sustainability implementation and high enforcement of sustainability in the Rwanda institutions that make the procurement policies basing on the recommendation of the laws and policies established by the Rwanda Public. This knowledge can be used to design training programs to meet the needs and abilities of a specific group of workers, thus improving the success and complete adoption of sustainable supply chain into the public procurement of Rwanda.

4.2 Descriptive Analysis.

The descriptive analysis entails generalizing the data to be able to learn the overall traits of the respondents. This section will give a summary of the results that were obtained during the field.

4.2.1 Integration of Sustainability in Procurement Activities.

The table below is a summary of the perception of the respondents on the inclusion of sustainability in procurement activities in Rwanda Public Procurement Authority (RPPA).

Table 4.5: Perceptions on integration of sustainability in procurement activities.

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation
Sustainability requirements (environmental standards, lifecycle cost, energy efficiency) are regulatory included in tender documents.	0	0	15	36	39	4.27	0.73

Sustainability consideration is integrated into supplier selection and contract award decisions.	0	0	20	32	38	4.20	0.78
Sustainable procurement principles are embedded across all stages of the procurement cycle (planning, tendering, evaluation, contracting, and inspection)	0	0	39	23	28	3.88	0.85

Source: Primary data 2026

Table 4.5 shows the perception of the respondents on the issue of integrating sustainability in the procurement activities within Rwanda Public Procurement Authority. The table identifies 3 important statements in the inclusion of sustainability requirements in tender documents, sustainability consideration in supplier selection and contract award, and the inclusion of sustainable procurement principles in all the stages of the procurement cycle.

In Rwanda, sustainability has been well integrated in the public procurement. The initial statement focused on the understanding of the quality of how sustainability requirements are regulatory in tender documents in RPPA. Based on the responses, 0 respondents strongly disagreed, 0 respondents disagreed, 15 respondents were neutral, 36 agreed, 39 strongly agreed with this statement. The average mark of 4.27

represented the overall positive attitude to sustainable requirements regulations that are contained in tender documents. The standard deviation of 0.73 meant that there is a large percentage that agrees with the statement which implied that there is regulatory inclusion of sustainability requirements in tender documents.

The third statements assess the embracing of the principles of sustainable procurement in all the procurement phases. The responses of distribution are 0 respondents strongly disagreed, 0 respondents disagreed, 39 respondents were neutral, 23 respondents agreed and 28 respondents strongly agreed with what was said. This statement achieved high response rate in agreement with a mean of 3.88 and low standard deviation of 0.85 respondents, this indicated that there are many respondents who agree with the statement of the inclusion of sustainable procurement principles in all the stages of the procurement circle.

Integration of sustainability requirements: Basing on the results obtained, most of the respondents hold that sustainability requirements like environmental standards, lifecycle cost, energy efficiency are regulatory in the tender documents in the Rwanda Public Procurement Authority (RPPA), whereby there is a relatively high mean and a smaller standard deviation, which implied wide integration of sustainability requirements. Sustainability consideration: Sustainability consideration was viewed as an essential element in increasing sustainability in the supply chain particularly in incorporated into supplier selection and contract award decision but there was a significant minority who were neutral.

Significance of sustainable procurement principles: Sustainable procurement principles are enshrined throughout the procurement cycle with a worthy average indicating a presentable number of respondents who agree with the application of sustainable procurement principles in all the levels of the procurement cycle.

4.2.2 Regulatory Drivers influencing Sustainable Procurement Adoption.

The table below provides an overview of the perception of respondents on the role of regulatory drivers in the adoption of sustainable procurement at Rwanda Public Procurement Authority (RPPA).

Table 4.6: Perception on the influence of Regulatory Drivers on Sustainable Procurement Adoption.

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation
National public procurement regulations strongly promote sustainable procurement practices.	0	0	18	32	40	4.24	0.77
RPPA's regulatory framework provides clear and detailed direction on sustainability requirements for procuring entities.	0	0	33	36	21	3.87	0.77

Legal and compliance obligations motivate staff to integrate sustainability considerations into procurement decisions.	0	0	15	37	38	4.26	0.73
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Source: Primary data 2026

Table 4.6 gives an idea of what the respondents thought about the role of the regulatory drivers in the adoption of sustainable procurement at RPPA. The table includes three statements on the regulations of the National public procurement, the regulatory framework of RPPA, and the legal and compliance obligations that should encourage the staff to consider sustainability aspects as part of procurement decisions.

The first one is the evaluation of the impression that National public procurement regulations highly encourage sustainable procurement practices. The responses showed that 0 respondents strongly disapproved, 0 respondents disapproved, 18 were neutral, 32 agreed and 40 strongly agreed with the statement. The average of 4.24 indicated great agreement among the respondents, the standard deviation is 0.77, this indicated a relatively stable opinion on the strong effect of National public procurement regulations in promoting sustainable procurement practices.

The second one is a statement that looks at the clarity or lack of clarity of the regulatory framework of RPPA regarding sustainability requirements in acquiring entities. There were 0 respondents who strongly disagreed, 0 respondents who disagreed, 33 who were neutral, 36 who agreed, and 21 who strongly agreed to the statement. The mean score of 3.87 indicated a positive perception slightly lower than the first statement as the standard deviation of 0.77 revealed that more respondents were in agreement to this statement.

The third statement explores the impact of legal and compliance obligations upon motivating staff to integrate sustainability considerations into procurement decisions. The responses showed that 0 respondents strongly disagreed, 0 respondents disagreed, 15 were neutral, 37 agreed, and 38 respondents strongly agreed with the statement. With a mean score of 4.26, this statement received a high level of respondents in agreement, coupled with the lowest standard deviation of 0.73, which indicated a strong consistent impact upon which legal and compliance obligations motivate staff to integrate sustainability considerations into procurement decisions.

Role of National Public Procurement regulations: The majority of respondents strongly agreed that National public procurement regulations promote sustainable procurement practices, suggesting that the regulations/ policies put in place highly advocate and encourage public entities as well as private entities to embrace sustainability initiatives within their procurement practices.

Direction provided by RPPA's regulatory framework: There was a notable number of respondents that agreed on the fact that RPPA's regulatory framework provides clear and detailed direction on sustainability requirements for procuring entities, this insight suggested a significant contribution made by RPPA in providing direction to public entities upon embracing sustainability.

Motivation to staff: The findings indicated that there is a high number of respondents in agreement with the statement that Legal and compliance obligations motivate staff to integrate sustainability considerations into procurement decisions. This highlighted a significant contribution that regulations highly embed/motivate build-up sustainability considerations among the staff within public sector entities.

4.2.3 Barriers to Sustainable Procurement Adoption.

The table below summarizes the perception of the respondents with regard to the barriers to adoption of sustainable procurement at Rwanda Public Procurement Authority (RPPA).

Table 4.7: Perception on the Barriers to Sustainable Procurement Adoption.

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation
The limited number of suppliers who meet sustainability standards hinders sustainable procurement adoption.	5	12	16	20	37	3.80	1.27
Limited sustainability awareness among procuring entities affects RPPA'S ability to promote sustainable procurement.	8	12	14	26	30	3.64	1.32
Sustainable products and services are often perceived as more costly, limiting their use.	2	11	18	33	26	3.78	1.06

The results indicated a general agreement amongst the respondents that there are numerous factors that inhibit adoption of sustainable procurement. The high mean score of 3.80 indicated that most respondents have seen the limited suppliers capable of upholding the sustainability standards as a significant hindrance. This implied that availability of compliant suppliers is still a major challenge. The respondents also concurred that, lack of sustainability awareness among procuring organizations influences the effectiveness of RPPA in fostering sustainable procurement since it is demonstrated with an average of 3.64. This implied that gaps in knowledge and understanding of sustainability issues reduce/limit effective implementation.

Moreover, the perception that sustainable products and services were not cheap was also well supported with a mean of 3.78 and this meant that cost factor remains to be a major deterrent to their use. All in all, the generated results show that most of the respondents agreed that supplier restraints, insufficient sustainability knowledge and budget issues are the predominant obstacles that prevent sustainable procurement adoption with all mean scores indicating that they were more than the neutral level. This was an indication of a common perception that these issues have a huge impact on sustainable procurement practices in the public sector units in Rwanda.

4.3 Chapter summary.

This chapter contains a detailed discussion of the information gathered on the topic of integrating sustainability in procurement processes, regulatory forces which drive adoption of sustainable procurement, and obstacles to adoption of sustainable procurement within Rwanda Public Procurement Authority (RPPA). With the descriptive cross-sectional research design, the results provided pertinent implications on how to improve sustainable supply chain being steered by regulatory drivers.

The descriptive analysis gave a comprehensive profile of the respondent's characteristics in terms of work experiences as well as gave a clear insight into how sustainability is being embraced, adopted and limited (barriers) in the supply chain at Rwanda Public Procurement Authority. The information gathered will help RPPA understand what needs to be improved and make good decisions to improve procurement practices in the future in a more effective and recommendable way that

can accommodate full adoption of green supply chain by Rwanda public sector procurement organization as well as the private organization.

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS.

5.0. Introduction.

The main aim of this research was to examine the influence of regulatory drivers in the adoption of sustainable procurement in the supply chain management. The study has three main areas that inform the discussion; the obstacles to adoption of sustainable procurement, regulatory forces that influence sustainable procurement practices, and how sustainability can be embedded into the operations of procurement at Rwanda Public Procurement Authority (RPPA). Rediscovering these areas, this chapter makes the interpretation of the findings in the light of available literature in addition to taking into consideration the practical issues, the conflicting priorities and situations under which procurement decisions are made. The discussion does admit that stakeholders working in complex systems (not in abstract structure) are confronted with obstacles to change because of capacity limitations, cost limitations and organizational resistance.

On the basis of this discussion, conclusions, summarizing the key lessons that can be drawn as a result of the research, are also presented in this chapter. These findings not only present the study objectives but realities in the field through the results but also the interrelations between regulation and institutional commitment and the individual agency in promoting sustainable procurement. The chapter acknowledges that even though compliance can be encouraged using regulatory frameworks, the element of meaningful integration of sustainability must be achieved by the understanding, ownership and support at the organizational level.

Finally, the chapter will conclude by giving recommendations in the hope of having a more successful and realistic implementation of sustainable procurement practices. These are recommendations made based on the results of the study and directed to policy makers, organizational leaders and people working in procurement who are directly involved in applying sustainability principles. The chapter aims to give a contribution to better decision-making and long-term sustainability results by concentrating on practical solutions, as well as offer a starting point in future studies on this developing discipline.

5.1. Integration of sustainability in procurement activities.

The results show that at the Rwanda Public Procurement Authority (RPPA), sustainability considerations are highly integrated in procurement activities. The majority of respondents reported that the requirements with regard to sustainability like environmental standards, life-cycle costing, and energy efficiency are explicitly mentioned in tender documents as evidenced by the relatively high mean score and low standard deviation. This implies that there is a common and constant institutional practice and not inconsistency use/application.

It aligns with the policy direction of Rwanda especially after the adoption of the Sustainable Public Procurement (SPP) Policy Framework in 2024 that formally institutionalized the consideration of environmental, social and economic sustainability concerns in the processes of public procurement. The integration in this study thus is not just an outcome of compliance in the organization but also in line with national reforms to utilize public procurement as a source of sustainable development.

Additionally, the paper finds that sustainability has a major role to play in the process of supplier's selection and awarding contracts, with procurement having a strategic impact on supply chain sustainability. In spite of the fact that a small part of the respondents has been neutral, the general view confirms the fact that the principles of sustainable procurement are integrated on all levels of the procurement process.

This is consistent with the trend in the world where the United Nations Sustainable Development Goals were adopted in 2015, especially SDG Target 12.7, which suggests that nations should foster sustainable procurement practices in the public.

Since 2015, governments around the globe have continued to increasingly incorporate sustainability requirements into procurement requirements, with faster uptake of such requirements seen in 2018-2023 as organizations increasingly adopt environmental and social performance indicators in their procurement processes.

These international timelines are converged with the findings of the study to indicate that the procurement practices of RPPA are changing according to the global best practices to support the view that the procurement practice is a key factor in promoting sustainable supply chains and the creation of value in the long term.

5.1.2 Regulatory Drivers Influencing Sustainable Procurement Adoption.

The findings of this study show that the national procurement legislations within a nation are a strong driver towards adoption of sustainable procurement. Most of the respondents emphatically agreed that current national regulations are conducive to sustainability and this implies that the policy environment should lead to the adoption of sustainability by both the public and the private sectors in making procurement decisions. Rwanda has developed this regulatory emphasis over time beginning with the national public procurement law (last updated in 2022) that reinforces the procedural and transparency aspects of procurement processes and the introduction of the Sustainable Public Procurement (SPP) Policy Framework in 2024 as a particular instrument to add sustainability to a public procurement regime.

This advancement shows how legal requirements have always transcended the general procurement governance and embraced the elements of environmental, social, and economic sustainability that has made the regulations stronger than the procedural requirements but as the true tools of long-term transformation. Furthermore, the findings of the research provide a clear and easy-to-follow indication as to the sustainability regulation of the RPPA, and the participants stated that the legal and compliance-related issues are one of the biggest motivators to make the staff think about sustainability in procurement.

This controlling force/ push falls in line with international trends whereby sustainability has been entrenched in the legal systems. As an example, the Public Services (Social

Value) Act 2012 of the United Kingdom guides that a social, economic, and environmental well-being is taken into account in procurements by the authorities, which was operational in 2013 and the Social Partnership and Public Procurement (Wales) Act of 2023 additionally reinforces the statutory duties of socially responsible procurement. The ISO 20400:2017 first issue was published in 2017 and provides advice internationally on how to integrate sustainability into procurement activities. Combined with the views of the respondents in this research, these regulatory key steps show that the adoption of sustainability in the context of public procurement is enhanced by an increasingly robust legal framework both in Rwanda and in other countries where regulations do not only inform but also actively promote the adoption of sustainability throughout the procurement process.

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5.1.3 Barriers to Sustainable Procurement Adoption.

The results of this research indicate that the constraint of suppliers, the lack of awareness on sustainability, and the issue of costs is a common perception as the primary obstacles to implementing sustainable procurement practices in the Rwandan public sector. The respondents tended to agree on these challenges, as indicated by the

mean scores which were above the neutral level indicating that such issues are usually encountered as opposed to being alone. The lack of suppliers, especially the inability to find suppliers that can comply with the sustainability requirements, is also emphasized by the problem of suppliers that will be able to provide sustainable products and services in the markets where sustainability is yet to be established.

The same issues have been identified in other countries; in Nigeria, one of the studies revealed that the lack of supplier capacity and awareness of sustainability is a primary barrier to public procurement (Olawale & Sun, 2022, Sustainability, MDPI). This indicates that the obstacles revealed in Rwanda are not isolated cases but are components of a broader international trend which is influencing most of the world procurement systems in the public.

Furthermore, the research indicates that poor awareness among the procurement employees and cost issues are also significant barriers. A large number of the respondents expressed that sustainability is viewed as costly, particularly in short run which can affect decision making in budget sensitive set ups. This view is justified by the fact that research in the literature reveals that public institutions around the world tend to be reserved/safe about sustainable procurement because of its cost and technical expertise limitations (Walker and Brammer, 2019, Journal of Cleaner Production; Renwick et al., 2017, International Journal of Operations and Production Management). Though such policies as Sustainable Public Procurement Policy Framework approved in Rwanda are made to help overcome these issues, the results indicate that the regulations are not enough. The procurement practitioners should be made more aware of sustainability and more practical training; awareness programs and supplier development initiatives are required to ensure that cost effective and sustainable options are more available in the market.

5.2 Conclusion.

This paper has shown that the concept of sustainable procurement is increasingly being integrated into the public sector of Rwanda and the policies and reality support the well-being of the environment, social and economic sustainability. The majority of the respondents indicated that the sustainability requirements, such as energy efficiency,

lifecycle costing and environmental standards are included in tender documents and that the sustainable procurement principles are reflected in the procurement process.

This indicates that the public procurement system in Rwanda is increasingly moving towards global best practices especially after the latest policy changes, such as the adoption of the Sustainable Public Procurement Policy Framework in 2024. In general, it is integrated in the area of sustainability but still more efforts are needed in order to improve the knowledge of the practitioners and the implementation across all government structures. It is also brought out in the study that regulatory drivers have a great impact in encouraging adoption of sustainable procurement. The national regulations, together with the guidelines of the RPPA and legal compliance requirement can provide a sense of direction and a motivation to the procurement staff to not forget the idea of sustainability.

Respondents confirmed that these structures do not just inform the actions but also accountable and professionally responsible and prove that policies in isolation are effective when they are supported with clear instructions and staff awareness programs. This illustrates that regulations are a potent source of progressing sustainability in the field of public procurement and shows that the constant policy support, communication and monitoring are paramount. The study, however, has found that there exist a number of challenges which still impede the complete adoption of sustainable procurement.

The key challenges are supplier restrictions, insufficient awareness of the sustainability aspect among the procurement staff and cost concerns. Though there are regulations, the actual barriers to sustainable procurement lie in the capacity of suppliers, the budget, and lack of knowledge to show that the policy is not enough to make sustainable procurement successful. In order to address these issues, certain interventions are required: training of the staff, programs to be implemented with suppliers and activities to demonstrate the long-term financial and social advantage of sustainability. Overall, the findings indicate that the adoption of sustainable procurement in Rwanda is in the right direction but requires a combination of regulatory, capacity building and market preparedness to realize its full potential.

5.3 Recommendations.

In accordance with the results of the present research, it can be suggested to take the following practical steps in order to reinforce the implementation of sustainable procurement practices in the Rwandan public sector: Improve personnel capacity and levels of awareness.

The research has pointed out that the lack of sustainability knowledge of procurement personnel is still a major obstacle. In response to this, the public sector organizations are advised to invest in periodic training sessions, workshops and awareness creation activities to enable the staff to have the knowledge and skills needed in the implementation of sustainability criteria. This can be achieved by having sustainability modules as part of the professional development programs so that the procurement practitioners are well informed of the advantages and implementation of sustainable procurement.

Enhance supplier interaction and market preparedness. One of the significant barriers to the implementation of sustainable procurement was found to be suppliers' limitations. Government agencies are advised to develop their capacity through partnership with suppliers and to give them a clear sustainability guideline, as well as to promote the creation of sustainable products and services. Supplier development schemes, incentive plans and recognition programs can encourage suppliers to achieve sustainability requirements, which will provide a more sustainable and available market to sustainable procurement.

Encourage lifecycle costing and financial awareness in the long term. One of the most common barriers mentioned was cost, which indicated the view of sustainable choices being more costly. The lifecycle costing methods used by public bodies must be based on the need to show the economic benefits of sustainable procurement over the long term, with a particular emphasis on energy, maintenance and environmental cost savings. Sustainability is a cost-effective option that can be made possible by awareness campaigns and case studies to redirect attention towards long-term value creation instead of short-term spending.

Enhance regulatory guidance and oversight. Although regulations and guidance of RPPA are good drivers, it still needs constant support to be adopted practically. Regulatory bodies are advised to regularly revise and revise sustainable procurement guidelines, give step-by-step guidelines on how to procure entities and have monitoring mechanisms to monitor adherence. Audits and feedback loops may aid in recognizing gaps in implementation and strengthening accountability among the procurement personnel.

Promote procurement sustainability culture. In addition to regulations and training, it is important to develop a culture that embraces sustainability at all the public entities. The leadership must be able to exemplify sustainable practices, reward procurement teams which perform well in the area of sustainability, and to incorporate sustainability goals into performance reviews. The culture-based strategy will make sure that sustainable procurement is not an additional element to the decision-making process.

5.4 Future Research Directions.

Exploring the Role of Organizational Culture in Sustainable Procurement.

Regulatory drivers have been the focus of the current paper but the influence of internal values and organizational culture on adoption of sustainable procurement practices can be explored in subsequent research. Comparative studies of different entities in the public sector on an inter-organizational basis can help illuminate culturally based factors that can either facilitate or hinder sustainability initiatives.

Comparative Sectoral and Regional Studies. This study was based in a given setting of the public sector. Future studies could be comparative studies across most sectors (e.g., healthcare, education, infrastructure) or regions to determine the differences in regulatory drivers and best practices and challenges in sustainable procurement.

Take the Digital Procurement Technologies and Technological Innovations. As the technology landscape rapidly evolves, future studies might examine how the current digital tools, including procurement systems, artificial intelligence-driven supplier assessment systems, or blockchain to achieve supply chain transparency could assist in

regulatory compliance and improve sustainable procurement processes. This would deal with the increasing use of technology in enabling sustainability.

Exploring Stakeholder Perceptions and Engagement. Although regulatory drivers play a crucial role, stakeholder views, such as procurement personnel, suppliers, and policymakers, may be in the spotlight of future studies. Their perceptions, motivation and resistance can be known to create better strategies to implement sustainable procurement.

5.5 Chapter Summary.

This paper highlights the significance of some of the major issues to be considered in improving the effectiveness of integrating sustainability in procurement operations, regulatory forces that contribute to the adoption of sustainable procurement and the obstacles to sustainable procurement adoption at the Rwanda Public Procurement Authority (RPPA). Through the recommendations given.

This chapter reflected on the findings of this study, highlighting how regulatory frameworks shape sustainable procurement in the public sector underscoring the importance of several key factors in enhancing the effectiveness of the integration of sustainability in procurement activities, regulatory drivers influencing sustainable procurement adoption and the barriers to sustainable procurement adoption at the Rwanda Public Procurement Authority (RPPA). Regulations are powerful incentives but the lack of staff awareness, supplier capacity and the short-term perception of cost remain challenges that impede full implementation. The chapter suggested specific measures, such as training of the staff, involvement of the suppliers, lifecycle costing, enhanced monitoring, and the culture of sustainability. Based on these understandings, it was suggested that a future study should be conducted to determine the human, cultural, technological, and sector-specific aspects that can affect sustainable procurement, so that sustainability can no longer be merely a need, but a value ingrained in the daily procurement activities.

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15. Sustainable infrastructure should consider the full life cycle to address socioeconomic and environmental goals (Bueno et al., 2015; Hendricks et al., 2018; Kalbar & Das, 2020; Maqbool et al., 2023; Sharifi, 2021; Toniolo et al., 2020; Yang et al., 2023).