EFFECT OF PROCUREMENT RISK MANAGEMENT PRACTICES ON SUPPLY CHAIN PERFORMANCE

IN PUBLIC SECTOR IN TANZANIA: THE CASE OF RURAL WATER SUPPLY AND SANITATION AGENCY (RUWASA)

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OCTOBER, 2023

AUTHOR'S DECLARATION

I Anna Lewis Nchindiuza declare that this dissertation is my original work and has not been presented and will not be presented to any university for similar or any other degree awards.

Signature: _____ Date: _____

CERTIFICATION BY SUPERVISOR

I, the undersigned, certify that I have read and hereby recommend for acceptance by the Institute of Accountancy Arusha a report entitled; ***Effect of Procurement risk management practices on supply chain performance in public sector in Tanzania: The case of the Rural Water Supply and Sanitation Agency (RUWASA) in Dodoma*** in fulfilment for the award of the degree of Masters of Business Administration in Procurement and supplies offered by the Institute of Accountancy Arusha.

Signature _____   **Date**_____

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Department of: Procurement &supplies management

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ACKNOWLEDGEMENT

ABSTRACT

The study aimed at examining the effect of Procurement risk management practices on supply chain performance in public sector in Tanzania using the Rural Water Supply and Sanitation Agency (RUWASA) as an example. There are limited literatures in Tanzania's context and continued procurement risk encountered by public entities in Tanzania thus prompting the study to bridge the gap. The study was guided by the following specific objectives; to examine the effect of procurement risk identification practices on supply chain performance at the Rural Water Supply and Sanitation Agency, to examine the relationship between stakeholders' involvement and supply chain performance at the Rural Water Supply and Sanitation Agency and finally to show the relationship between risk mitigation strategies and supply chain performance at the Rural Water Supply and Sanitation Agency. The study applied mixed approach to include both qualitative and quantitative approaches. This study adopted a cross-sectional research design. The sample size of the study was 191 employees and applied both probability and non-probability sampling procedures in selecting the study sample. The data generation methods that were used was the Self-Administered Questionnaires, documentary review and interview guides. Descriptive and inferential statistics with the aid of Social Sciences Statistical Package (SPSS) version 25 were used to analyse the collected quantitative data. The study findings revealed that risk identification practices had a positive statistically significant relationship with supply chain performance with the p-value (0.01) less than 0.05 ($p < 0.05$) and the coefficient at 0.712. This implies that the unit change in supply chain performance on average increased supply chain performance by 71.2%. On the relationship between stakeholders' involvement and supply chain performance at RUWASA, Stakeholders' involvement was positively associated with supply chain performance at 0.790 which was significant with a p-value (0.000) less than 0.05 ($p < 0.05$). This implies that the unit increase in the level of Stakeholders' involvement led to 79.0% decrease in the overall supply chain performance. On the relationship between risk mitigation strategies and supply chain performance at the RUWASA, the findings also showed that Risk mitigation strategies had a positive and significant relationship with supply chain performance with a co-efficient of .608 and p-value $P = 0.002$, an implication that on average a unit increase in the level of Risk mitigation strategies results into a 60.8% increase in the supply chain performance. The study recommended that; The RUWASA should continuously carryout pre-screening of supplier's Capacity so as to maintain proper supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability. The government through public entities more so the RUWASA should ensure that Periodic Procurement Audits are carried out so as to ensure good supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability. The RUWASA should ensure that Inventory Forecasting is properly carried out to ensure good supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability.

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LIST OF ABBREVIATIONS /ACRONYMS / SYMBOLS

CAG   Controller and Auditor General

CR   Customer Relationship

EU   European Union

IAA   Institute of Accountancy Arusha

LGAs   Local Government Authorities

MBA   Master of Business Administration

OECD   Organization for Economic Co-operation and Development

OP   Organizational Performance

PO-RALG   President's Office, Regional Administration and Local Government Tanzania

PPRA   Public Procurement Regulatory Authority

RBV   Resource-Based View

RUWASA   Rural Water Supply and Sanitation Agency

SC   Supply Chain

SCR   Supply Chain Resilience

SCRM   Supply Chain Resilience Management

SR   Supplier Relationship

TANePS   Tanzanian National e-Procurement System

UAE   United Arab Emirates

CHAPTER ONE

1.0   INTRODUCTION (PROBLEM SETTING)

1.1   Introduction

This chapter presents; Background to the Problem, statement of the problem, general objective, specific objectives, research questions, scope of the study, limitations/anticipated problems, significance of the study, brief organisation of the dissertation and finally concluding ideas and concepts of the preceding writing.

1.2   Background to the Problem

Supply chain disruptions, supplier bankruptcy, legal/regulatory issues, and supplier dependency on a company are all examples of procurement risks. Other risks include a company's dependence on a supplier, unanticipated price volatility of raw materials, supplier quality issues, and unanticipated price volatility caused by currency exchange rates (Sheffi, 2015). The steps taken to reduce or eliminate procurement risks, including modifications to behaviors, processes, and controls, are known as procurement risk management practices (Kalvet, & Lember, 2010). Dockeary & Lacy (2013) also confirms that the risk management framework applied to procurement involves Risk anticipation, Risk Monitoring, and Risk Mitigation. Effective procurement risk management practice requires an understanding of the relationship between procurement and organizational objectives.

In the global aspect, procurement risk management practices played a prominent role in fostering supply chain resilience and robustness in French firms as affirmed by El Baz, & Ruel, (2021). The European Union (EU) itself has important financial instruments, which can be used for promoting the procurement of innovation and help procurers manage risks (Tsipouri, Edler, Rolfstam, and Uyarra, 2010). The EU has a set of directives regarding to the public

procurements according to their object. Infact in Europe, a set of risks have been identified, which are manifested throughout the development of any public procurement process, and which are construed as having general validity and applicability, considering the stage and relation in the public procurement process (Manea, and Popa, 2010).

In the Asian world, the implementation of the sustainable supply chain risk management practices in firms has led to competitive advantage such as cost savings of handling waste material and reduction in energy consumptions. Which is the reason; firms like Panasonic, Xerox, HP, Motorola, Wal-Mart, Sony, Ford, IBM, and General Motors encourage their suppliers to environmental aspects according to ISO 14000/14001(Syed, Li, Junaid, Ye, and Ziaullah, 2019). In the United Arab Emirates (UAE), risk management had a major impact on procurement performance as noted by AlQubaisi, and Emran, (2022). In india, Rogers, et al, (2016) noted a range of supply chain risks prevalent in Indian supply chains, classified here as cultural, operational, infrastructure, economic, forecasting and supplier-related risks that greatly affect the supply chain. Furthermore, in India, Rotich et al. (2018), asserts that risk management has a significant impact on the performance of mega projects in the energy sector when it comes to the procurement process.

In the African perspective, Hill, (2019), asserts that Supply chain risk management (SCRM) practices, Supply Chain (SC) Flexibility, SC Collaboration and SC Control have significantly affected the supply chain performance of the manufacturing firms in Ethiopia. In South Africa, Munyuko, (2015) noted that the main sources of risks as identified during the study were technological risks, political risks, market risks, environmental risks and financial risks. It also noted that supply chain risk identification, risk sources and risk mitigation strategies impacted the organization performance. In Ghana, procurement strategy was a critical factor that positively affects performance of road construction projects (Dagba, and Dagba, 2019).

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In the East African perspective, Peter, et al. (2018) noted that in mega projects in the energy sector in Kenya, procurement risk management has a significant influence on procurement performance. Adoption of various risk management tools such as multiple sourcing, feasibility study, stakeholder management, risk guarantees, risk appraisal and sharing contribute to management of procurement risks that include: financial risks, risk of contractor failure, and technology risks. Ochieng, (2019) further asserts that procurement risk management practices (risk identification and hedging) positively and significantly affected performance of manufacturing firms in Kenya

In Tanzania, Masenene (2015) observed that operational risk management was poorly implemented in Tanzanian financial institutions and exposed a number of hazards, including a weak risk management department and lax norms and principles, which have an impact on the organization's operational performance. Chileshe and Kikwasi (2017) also asserted that lack of knowledge of the risk management process, a lack of knowledge and expertise, as well as time and financial constraints, are the key obstacles to risk management implementation in construction projects, which negatively impacted project performance.

Procurement is a crucial element in the working functions of any public organizations even in Tanzania (Okinyi& Muturi, 2016). It is impossible for the governments to effectively conduct its activities without considering public procurement. For it is hard for the government to survive without public procurement as it provides much contribution for the survival of the country businesses and overall economy issues (Mwangi, &Nyambura, 2015). Organisation for Economic Co-operation and Development, (OECD), (2016) asserts that an effective procurement system plays a strategic role in governments for avoiding mismanagement and waste of public funds through good procurement risk management practices. It is against this background that this study sought to assess the effect that Procurement risk management

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practices have on supply chain performance in public sector in Tanzania using the RUWASA as the case study.

1.3   Statement of the Problem

Procurement is frequently carried out under unpredictable supply conditions and high degree of uncertainty which increase the degree of risk, which might involve, among other things, fluctuating input material prices, supply shortages, and uncertain lead times (Brindley, 2017). Due to this, it has received scholarly attention, and a number of studies on effect of Procurement risk management practices on supply chain performance have been conducted. For example; Mwangi &Nyambura, (2015), Okinyi & Muturi, (2016), Chileshe and Kikwasi, (2017), Ochieng, (2019), El Baz, & Ruel, (2021), and finally Hill, (2019) that noted a positive effect of Procurement risk management practices.

In Tanzania, the government has employed many efforts to manage procurement risks through compliance of current procurement laws and regulations. The ministry of finance introduced the use of TANePS in executing of procurement function to all public procuring entities as the means of reducing procurement risks hence improved services to its public as a result of achieved value for money (Public Procurement Regulatory Authority (PPRA), 2021). However, the Controller and Auditor General (CAG) reports for the financial year 2021-2022 audit was released on 29th March 2023 and raised mixed feelings and views from the public on the government's operations specifically on the use of public funds. For the huge part, CAG reports address the observation on Public Procurement procedures. The report showed continued procurement risks such as corruption risk and noncompliance with procurement laws and regulations (Musiba, 2023). There is limited literatures in Tanzania's context and continued procurement risk encountered by public entities in Tanzania. This prompted the study to bridge

the gap by assessing the effect of Procurement risk management practices on supply chain performance in public sector in Tanzania using RUWASA as an example.

1.4   General Objective

This study's main aim was to examine the effect of Procurement risk management practices on supply chain performance in public sector in Tanzania using the RUWASA as the case study.

1.5 Specific Objectives

i.   To examine the effect of procurement risk identification practices on supply chain performance at the RUWASA.

ii. To examine the relationship between stakeholders' involvement and supply chain performance at the RUWASA.

iii. To show the relationship between risk mitigation strategies and supply chain performance at the RUWASA.

1.6   Research Questions

i.   What is the effect of procurement risk identification practices on supply chain performance at the RUWASA?

ii. What is the relationship between stakeholders' involvement and supply chain performance at the RUWASA?

iii. What is the relationship between risk mitigation strategies and supply chain performance at the RUWASA?

1.7   Scope of the study

1.7.1   Subject scope

The study focused on procurement risk management practices that included; procurement risk identification practices, stakeholders' involvement and risk mitigation strategies on supply chain

performance in form of product availability and on-time delivery in public sector in Tanzania and specifically at the RUWASA.

1.7.2 Geographical scope

The study was limited to staff of the RUWASA in Dodoma, which is the capital city of Tanzania. In the financial year 2021/2022, RUWASA planned to implement a total number of 2,115 water projects that include: - Development of 516 underground water sources; Designing of 37 dams and construction 35 dams; and Construction of 1,527 water infrastructure (317 ongoing projects, 465 new projects, 178 expansion, 224 infrastructure rehabilitation and 343 project design). This is a sign that the agency carries out enormous Procurement and stands high risks making it a good avenue to assess the procurement risk management practices and it effect on supply chain performance.

1.7.3 Time scope

The study was conducted among the staff of the RUWASA in Dodoma over the period 2019-2023. It is between 2019-2023 that the Water Supply and Sanitation Act No.5 of 2019 transferred accountability of officers responsible for water service provisions from PO-RALG, RSs and LGAs to the Ministry of Water to the newly established Agency (RUWASA). During this period, a lot of procurement have been carried out and it has taken steps to implement different Procurement risk management practices that has effect on supply chain performance specifically at RUWASA.

1.8 Limitations/ Anticipated Problems

Due to the limitation of time and finance, the study did not cover all public entities in Tanzania, RUWASA was taken as a case study. This study also concentrated on examining the effect of Procurement risk management practices on supply chain performance of the RUWASA. Despite these limitations yet, research findings were useful to the government, researchers,

and policymakers in understanding the effect of Procurement risk management practices on supply chain performance in the RUWASA.

1.9   Significance of the study

The findings of this study are expected to be significant to different stakeholders in different ways; first, it will help the government policymakers about the enforcement of different procurement risk management practices so as to improve the supply chain performance in public sector in Tanzania.

Furthermore, the study will create both theoretical and practical awareness that will benefit other stakeholders including the Managers and executive officers of public sector, Staff and other development partners that deal with procurement risk management. The findings will also act as a source of reference in future on effect of Procurement risk management practices on supply chain performance in public sector in Tanzania and create room for further studies and research, thus contribute to the existing body of literatures. The study will create passion and interest for academicians and experts on supply chain performance.

1.10   Brief Organization of the Research Report

This research reports is arranged into five chapters; chapter one consist of; background to the problem, statement of the problem, general objective (aim of the study), specific objectives, research questions / hypotheses, scope of the study, limitations of the study, significance of the study and lastly brief organization of the research report.

Chapter two consists of; theoretical literature review (what accredited authors have written), empirical literature review (previous studies), knowledge gap, conceptual framework (describe major concepts of the study) and theoretical framework or research model (theories that support the study).

Chapter three consists of; study area, research design, research approach (research type),

population, sample size and sampling techniques, data collection methods, pilot study, data analysis methods, validity and reliability (trustworthiness), ethical considerations and finally limitations that influence research methodology.

Chapter four contains the analysis and discussion of the study findings through drawing tables and graphs, and lastly, Chapter five has the summary of findings, conclusions and different recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction

This chapter covers both the theoretical and empirical review of the relevant literature to the study. The conceptual framework, research model and the hypotheses are discussed. The emphasize is on critical literature review.

2.2   Theoretical Literature Review

2.2.1 Effect of Procurement Risk Identification Practices on Supply Chain   Performance

Procurement risk identification practices play a crucial role in determining the overall supply chain performance. According DuHadway, Carnovale, and Hazen, (2019), the ability to identify and assess procurement risks is essential for a company to mitigate potential disruptions and improve supply chain performance. Effective risk identification allows organizations to identify potential threats and vulnerabilities, enabling them to take proactive measures to prevent or mitigate the impact of these risks on their supply chain operations. Additionally, effective risk identification practices provide organizations with a better understanding of the potential risks associated with their procurement activities, enabling them to make informed decisions and implement appropriate risk management strategies (Lavastre, Gunasekaran, and Spalanzani, 2012). Therefore, it is evident that the implementation of robust procurement risk identification practices positively influences supply chain performance.

2.2.2   Relationship between Stakeholders' Involvement and Supply Chain
Performance

Several authors have recognized the importance of stakeholders' involvement in achieving improved supply chain performance. For instance, in their study, Duong, and (2021) found that

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when stakeholders are actively engaged in procurement risk management practices, it positively influences the overall supply chain performance. The involvement of stakeholders helps in fostering effective communication, collaboration, and coordination among different entities within the supply chain. Furthermore, Bag, et al., (2023) argued that stakeholder involvement enhances the sharing of knowledge, information, and resources, which ultimately leads to better decision-making and increased supply chain performance. Therefore, it can be concluded that a strong relationship exists between stakeholders' involvement and supply chain performance, suggesting that organizations should prioritize involving stakeholders in procurement risk management practices to optimize their supply chain performance.

2.2.3 Relationship between Risk Mitigation Strategies and Supply Chain Performance

The relationship between risk mitigation strategies and supply chain performance is a crucial aspect to consider in procurement risk management practices. According to Can Saglam, et al., (2021), implementing effective risk mitigation strategies can significantly impact the overall performance of the supply chain. This is because these strategies help to identify and address potential risks and vulnerabilities, thereby enhancing the resilience and agility of the supply chain. Furthermore, Amemba, (2013) suggest that proactive risk mitigation strategies such as supplier selection, monitoring, and evaluation can improve the visibility and transparency within the supply chain, leading to improved coordination and collaboration. Therefore, it can be concluded that a strong correlation exists between the application of risk mitigation strategies and supply chain performance, highlighting the importance of adopting proactive measures to ensure a robust and efficient supply chain.

2.3 Empirical Literature Review

2.3.1 The effect of procurement risk identification practices on supply chain

performance

Mburu, et al. (2015) assessed the effect of risk identification management strategy on supply chain performance in manufacturing companies in kenya. The study found out that companies can only ensure there is adequate cost reduction along supply chain function through use of activities-based contracts with clean cost management targets, setting annual savings target and reporting achieved saving monthly and competitive bidding, purchasing from suppliers and delivering to customers economic quantities and majority of the companies build alliances through supply chain systems. According to the study findings, in order to enhance a smooth performing of supply chain in a company given the changing nature of markets due to increased diversity adequate risk identification and management is inevitable. All in all, the study stressed that hedging against risk management strategies improved supply chain performance at great extent and risk Analysis & Evaluation management strategies, risk Monitoring & Control management strategies and risk Identification management strategies improving supply chain performance at moderate extent.

Fozia, (2022) aimed at establishing the impact of procurement risk Identification practices on supply chain management performance at ITS Govinda & Sons (K) Ltd construction company. Descriptive survey research design was used in the study. Questionnaires were used as the main data collection instruments. Validity and reliability of the research instruments were ensued through preparation of the research instruments with experts in the department as well as piloting. Regression model was used to establish the relationship between risk identification practices and supply chain performance. From the results, the value of R squared was 0.499 which meant 49.9% of supply chain performance at ITS Govinda Sons (K) Limited Construction Company was explained by risk identification techniques. The hypothesis was rejected and thus risk identification has an effect on supply chain performance.

2.3.2 The relationship between stakeholders' involvement and supply chain performance.

Fozia, (2022) investigated the role of the stakeholder's relationship with supply chain resilience (SCR) and organizational performance (OP) using the lens of stakeholder theory in the manufacturing and service industry. Data were collected through a survey (questionnaire) completed by 202 supply chain representatives. The findings of the study revealed that supplier relationship (SR) and customer relationship (CR) have a positive and significant impact on SCR and a positive and significant relationship between SCR and OP. A positive and significant relationship between customer relationship and OP was also noted. The mediating role of SCR is also found positive and significant.

Dacha, & Juma, (2018) aimed at establishing the effect of stakeholder participation on the efficiency of the procurement process in the public sector. The research used descriptive survey research design in collecting data from respondents. The study covered a population of 160 employees in the institution and used probability random sampling technique with a sample size of 48 employees. The instrument of data collection was questionnaires. The data was analyzed using quantitative methods. The findings were that there is no user involvement in the procurement process meaning that there is some dissatisfaction with the procurement process, top management does not support stakeholder participation in the procurement process and there is minimal stakeholder interaction as the procurement process is carried out. It was concluded that sensitization of stakeholders on the importance of the procurement process and it was recommended that the stakeholders need to be included to improve the efficiency of the procurement process.

Olwande, (2021) assessed the relationship between stakeholder engagement and performance of the antiretroviral therapy supply chain project by national aids and sexually transmitted

infections control program in health facilities, Kenya. The findings revealed that stakeholder capacity building, human resource management, monitoring and evaluation, and communication management all had a positive and significant effect on project performance. It also implied that engaging the stakeholders by building their capacity to manage inventory, staffing, enhancing their use of appropriate monitoring and evaluation tools and systems and managing their communication, positively affected the overall performance of the drug supply chain in the health facility. The study therefore concluded that stakeholder's engagement had a significant effect on performance of the antiretroviral supply chain project by National Aids and Sexually Transmitted Infections Control Program in health facilities in Kenya

2.3.3 The relationship between risk mitigation strategies and supply chain performance.

Saglam, et al., (2021) focused on exploring the relationship between significant proactive risk mitigation strategies and supply chain risk management performance for manufacturing firms in Turkey. A survey-based methodology was adopted. The data was analyzed using the technique of partial least squares. The results indicated that SC resilience and responsiveness was positively associated with SCRM performance; however, SC flexibility did not. In addition, interestingly, RM culture did not moderate these relationships in spite of the extant literature.

Owuso, & Poi, (2019) examined the effect risk mitigation on sales performance of petroleum marketing firms in Nigeria. The purpose of the study was to evaluate the associations between risk mitigation strategies and sales performance. The study proposed a risk mitigation model with risk mitigation as the predictor variable while sales performance as the criterion variable with profit and sales growth as measures of the criterion variable the descriptive research design was adopted for the study while, the Pearson Product Moment correlation was used to test the proposition. The study revealed risk mitigation strategy positively affected profit, while

risk mitigation strategy did not have any significant effect on sales growth. The study recommended that Petroleum marketing firms analyze the identified risk and ensure that they deploy a strategy that best suit the peculiar situation of risk identified.

Mburu et al., (2017) aimed at determining the relationship between risk management strategy and supply chain performance among manufacturing companies in Kenya.The study adopted a cross-section survey of descriptive nature. Data was collected using questionnaires and analysed using statistical package of social sciences (SPSS) version 21 as a tool of analysis. In trying to explain the relationship between different variables in the study, Odd ratio regression was adopted as an appropriate method of analysing the relationship between multiple variables Requiring simultaneous comparison. The study findings revealed that the constructs of risk identification management strategy combined together influenced supply chain performance as supported by a p value of 0.000. Further, most of the companies had risk analysis and evaluation management strategy in place. The study also concluded that the odds of observing better lead time and odds of improved quality were higher for those companies that conducted whole life costing of suppliers (p value- 0.023) and internal controls of suppliers (p value- 0.049)

2.4   Knowledge gap

Procurement risk exists for an organization when supply market behavior, and the organization's dealings with suppliers, create outcomes which harm company reputation, capability, operational integrity and financial viability. Procurement risk management is as much an art as it is a science that should be running top on procurement's mind as a key management concern. Effective procurement risk management practice requires an understanding of the relationship between

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procurement and organizational objectives. Due to this procurement risk management practices have attracted a lot of studies more so on its effect on supply chain performance. However, when it comes to effect of procurement risk management practices on supply chain performance in public sector in Tanzania, little is known thus prompting the need to assess the effect of procurement risk management practices on supply chain performance in public sector in Tanzania using the RUWASA as the case study so as to fill this knowledge-gap hence further demonstrate how contextual elements come together to form a unique experience of effect of procurement risk management practices in Tanzania.

2.5   Conceptual Framework

According to Sitko (2013), the conceptual framework is a system of concepts, assumptions, expectations, beliefs, and theories that support and inform your research through explaining either graphically or in narrative form the key factors, concepts or variable and the presumed relationships between them. Independent variable in this study is procurement risk management practices that has several dimensions like; procurement risk identification practices, stakeholders' involvement and risk mitigation strategies.The dependent variables is supply chain performance as indicated by the indicators such as; procurement efficiency, timeliness, price accuracy and supplier reliability. The Figure 1 below shows the cause effect relationship between independent variables and dependent variables were upholding procurement risk management practices that include procurement risk identification practices, stakeholders' involvement and risk mitigation strategies results into better supply chain performance in terms of; procurement efficiency, timeliness, price accuracy and supplier reliability.

Independent variable   **Dependent variable**

Procurement Risk Management Practices
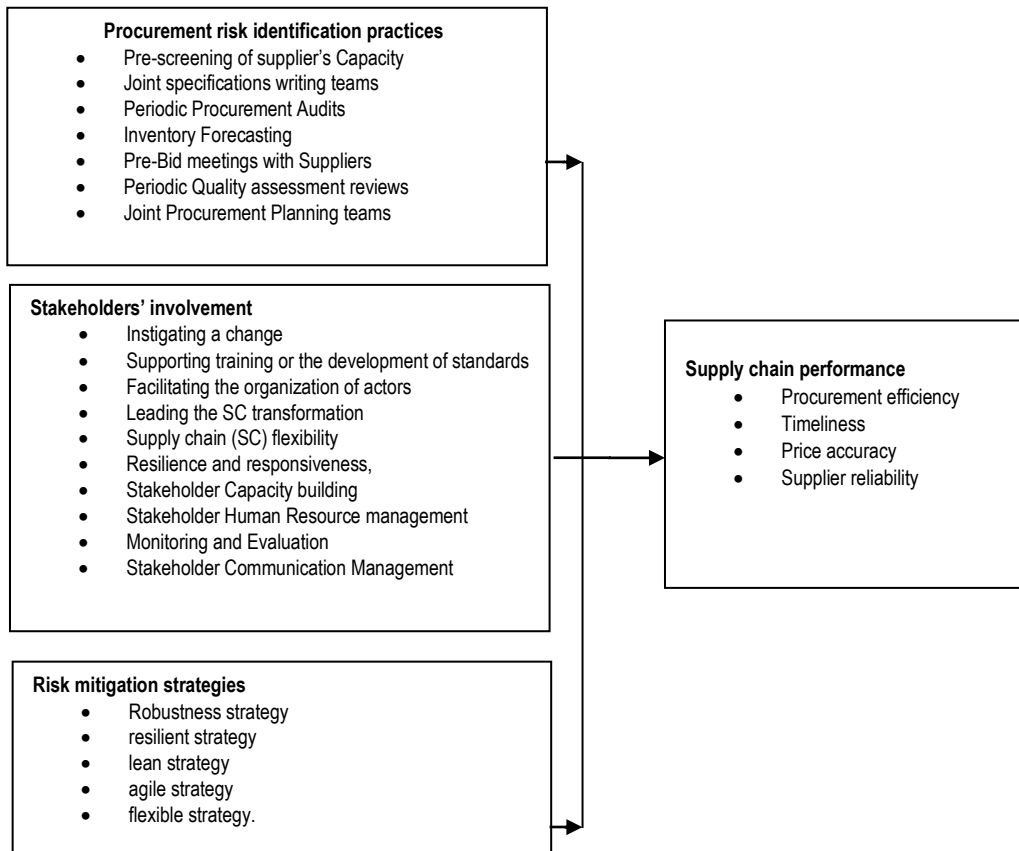
Figure 1: The conceptual framework of the study

2.6   Theoretical framework

2.6.1   Resource-Based View (RBV)

The resource-based view (RBV) by Wernerfelt B., focuses on gaining a competitive advantage in a firm. It asserts that instead of looking outside the firm for competitive advantage, companies should look within (Wernerfelt, 1984). According to Ahuja (2000) the resource-based view (RBV) of the firm indicates that firm behavior may be interpreted as a look for competitive gain. Within the competitive market structure parties in the supply chain seek to get have an impact on over the elements of production, those can offer them with an aggressive

facet over their closest competitors. In strategic management literature, the RBV of the firm plays dominating role (Halawi et al., 2005).

Resource diversity and resource immobility are the two major assumptions of the resource-based view of corporations (Barney, 1991; Mata et al., 1995). In keeping with Mata et al. (1995), beneficial resource diversity (useful resource heterogeneity) is involved with ownership of resource or capability, if several rival agencies own the same useful resource or functionality of the focal company, then that resource cannot offer a competitive benefit over the competitors. Resource immobility explains the complexity of accomplishing a resource via competition due to the fact the cost of attainment, improvement, acquisition or use that resource is too immoderate.

In a supply chain relationship, even as numerous resources owned or managed through opposite numbers, there can be a complicated supply chain relational function, then that of direct coordination relationship concerning interdependency context (Touboulic and Walker, 2015). The RBV means that the reason for introduction of accept as genuine with based absolutely collaborative value makes ground of assets pooling to shape supply chain relation. Immobility, inimitability, sustainability are a few traits of resources which emphasize on value creation, and thereby assists in improvement of supply chain alliance. Das and Teng (2000) said structural possibilities in terms of key four kinds of supply chain alliances (equity joint ventures, minority equity alliances, bilateral contract-based alliances, and unilateral contract-based alliances) which can be determined by using the useful resource profiles of partnering corporations. Consistent with Ahuja (2000) the resources that could offer advantages have three specific characteristics. First, resources can create value for the firm, i.e. they help firms to either lessen cost of inputs which influence on overall cost of manufacturing, or benefit more values of outputs. Second, they may be often organization specific in nature are both

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unavailable outside the developing company or undergo an attenuation of their cost if separated from true company. Third, resources are probably to be asset-based whose advent calls for accumulation of inputs through the years i.e. cannot be at once developed.

RBV was relevant and was applied to this study since it supports the different procurement risk management practices that have effect on the supply chain performance of public sector. In relation to this study, effective and innovative procurement risk management practices which in this study's case were in the public sector were very important when it comes to attaining good supply chain performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter contains; the research paradigms, research design, type of study, the study area, study population, units of analysis, variables and their measurements, sample size and sampling techniques, types and sources of data, data collection methods used, reliability and validity of data and data analysis methods.

3.2 The study area

The study was conducted in Dodoma region to examine the effect of Procurement risk management practices on supply chain performance in public sector in Tanzania using the RUWASA as the case study. The Water Supply and Sanitation Act No.5 of 2019, among other things, established The Rural Water Supply and Sanitation Agency (RUWASA) which took over mandates that were previously vested to PO-RALG, Regional Secretariats (RSs) and Local Government Authorities (LGAs). The transferred mandates involve ensuring the provision of water services to rural communities, small towns and district headquarters.

The Water Supply and Sanitation Act No.5 of 2019 has also transferred accountability of officers responsible for water service provisions from PO-RALG, RSs and LGAs to the Ministry of Water. The newly established Agency (RUWASA) has offices at Headquarters, Regional and District levels as opposed to previous structure which compose of office at LGA's level and RSs.

With its Headquarters in Dodoma, the Capital of Tanzania; and having assumed its functions on 1st July 2019 RUWASA operates in 25 regions in Tanzania mainland with the exception of Dar Es Salaam.

The RUWASA was rendered an ideal area to carry out a study on the effect of Procurement

risk management practices on supply chain performance.

3.3 Research design

This study adopted a cross-sectional research design that aimed at data collection for two or more variables to be examined at a single point in time in order to detect variables patterns of association. Cross-sectional study design is a type of observational study design. In a cross-sectional study, the investigator measures the outcome and the exposures in the study participants at the same time (Wang, & Cheng, 2020). The cross- sectional study design is preferred because of the consistency and nature of objectives aiming to reveal relationships among variables and allowing inferences to be made on the effects of explanatory variables on an outcome variable (Setia, 2016).

3.4 Research Approach

The study applied mixed approach to include both qualitative and quantitative approaches. Mixed methods research is a research method that combines and integrates qualitative and quantitative research methods in a single research study. It involves collecting and analyzing qualitative and quantitative data to understand a phenomenon better and answer the research questions (Terrell, 2012). The central premise of using mixed methods research in this study was because it made the most of the strengths of each data type while neutralizing their weaknesses. The researcher combined both qualitative and quantitative methods to expand evidence, improve the credibility of findings, and illustrate the results from one method with the results from the other one.

3.5 Population, sample size and sampling technique

3.5.1 Target population

The target population included all workers (Employees and Management) of the RUWASA. According to RUWASA Annual Performance Report of 2022, it had 367 members of staff

(Annual Performance Report for the Financial Year 2021/2022). Since the staff have been carrying out procurement in different projects in one way or another so they are well versed with the different procurement risk management practices and can justify it effect on supply chain performance.

3.5.2 Sampling procedures

The study applied both probability and non-probability sampling procedures in selecting the study sample. Probability sampling procedures were used since it allows you to make strong statistical inferences about the whole group. Non-probability sampling was applied since it involved non-random selection based on convenience or other criteria, allowing you to easily collect data. The study employed stratified sampling technique to select respondents from each department. The stratification was based on departmental professionals and the number of employees involved in the procurement. From each stratum the proportional random sampling was employed to select respondents. On the other hand, purposive sampling was employed to select key informants since we want to focus in depth on relatively small samples so as to access a particular subset of the population that shares certain characteristics. The key informants included top managers of the RUWASA.

3.5.3 Sample size

The sample size of the study was 191 employees obtained from 367 employees of the RUWASA, calculated using the formula by Yamane (1967).

$$n = \frac{N}{1 + N(x)^2} \quad \text{.. (1)}$$

Whereby   n = Sample size, N= Total population, x = Level of Precision,1= constant

N=367, X=5%

N= 367/ (1+367(5%)^2

N= 191.395 which is approximated to 191 respondents

Basing on this formula, the study used a sample size of 191 respondents which is an adequate number of representatives that possess all characteristics of the target population.

3.6 Data Collection Methods

The data generation methods that were used was the Self-Administered Questionnaires, documentary review and interview guides.

3.6.1 Self-Administered Questionnaires

Self-Administered Questionnaires were used since it provides the potential for anonymity of the respondent, which will lead to more truthful or valid responses. Also, the questionnaire was filled out at the convenience of the staff of the RUWASA in Dodoma region. Since there is no interviewer, interviewer error or bias is eliminated. The Self-Administered Questionnaires had sections A, B, C, and D. Section A constituted questions concerning the respondents' biodata. Section B, C, and D constituted questions developed to find out the; procurement risk, identification practices, stakeholders' involvement and risk mitigation strategies respectively. Most of the questions in Section B, C, and D were weighed using a Likert scale of five points where 1= strongly disagrees, 2= disagree, 3= neutral, 4= agree and 5= strongly agree

3.6.2 Key Informants Interviews

Key Informants Interviews was used to collect information from a wide range of leaders at the RUWASA in Dodoma region who have first-hand knowledge about procurement risk management practices. Key Informants Interviews were used to capture softer data and offered rich data and lasted between half an hour and an hour. Key informant interviews were used to

gather opinions about the procurement risk management practices. Key Informants Interviews was guided by interview guides to provide more details on the subject matter. In-depth interviews were conducted with managers at the RUWASA. During the in-depth interviews, the researcher led the interview by asking questions and recording the responses from the interviewees.

3.6.3 Documentary Review

Secondary data was collected and assembled from various available journals, magazines, documentaries, publications and official documents to support the information collected from primary data. This enhanced the evidence from the triangulated data and relating to validity and trustworthiness of the data collected. The reason for using documentary review in this study was to analyze documents pertaining related studies that were available to assist information gathering from documents, records, and publications within a short time and with less cost.

3.7   Data analysis methods.

3.7.1 Analysis of quantitative data

The data acquired was analysed based on an overview of the identified purpose of the study in the design of the research. The data analysis process included; editing, cleaning, and coding to quantify data representing the attributes of the variables (Nyakibari, 2020). Descriptive and inferential statistics with the aid of Social Sciences Statistical Package (SPSS) version 25 were used to analyse the collected quantitative data.

3.7.2   Analysis of Qualitative data

Qualitative data collected from the interviews was analyzed using content analysis where different themes were developed based on theories and literature.

3.8 Reliability and validity of data

3.8.1 Validity

Validity refers to the extent to which the research tool measures what it is intended to measure according to Kumar (2011). In this study, triangulation method, comments and guidance were provided by the research supervisor as this was of great and valuable input in the validation of research instruments. After which a Content Validity Index (CVI) was computed using the formula below:

$$CVI = \frac{K}{N} \text{ x } 100\%$$

Where K is the number of items declared valid and N is the number of items in the questionnaire. Thereafter, the quantified data was sorted, coded and entered into a statistical package (SPSS) to generate the results Sekaran (2003).

3.8.2 Reliability

Reliability means consistency and stability of information and that if research is conducted under the same circumstances' findings were replicated (Vesna *et al.,* 2017). Reliability was analysed using Cronbach's alpha (α) as itpredicts the variables. The usefulness of this technique is in ensuring internal consistency and group homogeneity (Vesna *et al.,* 2017). The generally agreed-upon lower limit for Cronbach's α is 0.70.

To assess the reliability of the questionnaires to determine how well different items on a scale measures the concepts which are supposed to measure; a reliability test was done with the help of the Statistical Package for Social Scientists (SPSS) using the Cronbach Alpha coefficient (α). The results show that reliability of the study was 0.837 as indicated in Table 1 below. This result was above minimum acceptable level of 0.7 as recommended by Naimuli

(2015). Generally, the study findings demonstrated that all four variables had dependability values above than the stipulated threshold of 0.7, demonstrating that they were all dependable. This illustrated that all the variables were reliable as their reliability values exceeded the prescribed threshold of 0.7.

Table 1: Test for reliability

Reliability Analysis	Cronbach's Alpha
Procurement efficiency	0.878
Timeliness	0.801
Price accuracy	0.855
Supplier reliability	0.820
Procurement risk identification practices	0.911
Stakeholders' involvement	0.715
Risk mitigation strategies	0.880
Overall Cronbach's Alpha	**0.837**

Source: Field data (2023)

3.7 Ethical Consideration

The study abided by rules and regulations as per the Institute of Accountancy Arusha to conduct the research. The identity of respondents was exposed in the data collection instruments so that the respondents remained anonymous. Also, confidentiality was maintained at all times as collected data serve the only academic purpose of the researcher. The researcher ensured that respondents are free from physical and psychological harm and freedom to share or not to share what they know if they so want to.

3.8 Limitations that Influence Research Methods.

Due to resources limitation of time and finance, the study did not cover all the entities in the

public sector in Tanzania, only one entity was taken as case study. However according to Saunder *et al.* (2015) one public entity was considered congruent. This study also concentrated on investigating the effect of procurement risk management practices on supply chain performance at RUWASA. Despite these limitations yet, research findings are useful to the government, researchers, and policy makers in understanding the effect of procurement risk management practices on supply chain performance in public entities.

4.0   PRESENTATION AND DISCUSSION OF FINDINGS

4.1   Introduction

This chapter provides a detailed analysis of collected data from fieldwork. The chapter includes the demographic profile of respondents. Furthermore, an in-depth discussion is made purposely to correlate the obtained data from different respondents. The discussion of the findings is based on specific objectives such as; to examine the effect of procurement risk identification practices on supply chain performance at the RUWASA, to examine the relationship between stakeholders' involvement and supply chain performance at the RUWASA and finally, to show the relationship between risk mitigation strategies and supply chain performance at the RUWASA.

4.2   Presentation of findings

4.2.1   Response Rate

The study findings in Table 2 show that, of the 191 distributed questionnaires to all workers (Employees and Management) of the RUWASA, 120(62.8%) were returned and 71(37.2%) were not returned. This implies that majority of the issued questionnaires were returned so most of the targeted respondents answered and returned the questionnaires. This is supported by Mugenda & Mugenda (2003) who noted that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Based on the assertion, the response rate was excellent.

Table 2: Response rate

Response	Frequency	Percentage (%)
Returned questionnaires	120	62.8
Unreturned questionnaire	71	37.2
Total	**191**	**100%**

Source: Study findings (2023)

4.2.2 Demographic characteristics of Respondents

The study considers the importance of analyzing the characteristics of a study population as it helps in data interpretation. The respondents were asked about their gender, age, marital status and level of education as shown in Tables below. These variables were deemed important in the interpretation of the data.

4.2.2.1 Gender of respondents

The findings from Table 3 revealed that about 52.5% of respondents were male and only 47.5% were female. This implies that most of the staff at the RUWASA were male. The intention was to have an equal number of male and female since it is important for workplaces not only because it is 'fair' and 'the right thing to do,' but because it is also linked to a country's overall economic performance.

Table 3: Gender of respondents

Response	Frequency	Percentage (%)
Male	63	52.5
Female	57	47.5
Total	**120**	**100%**

Source: Study findings (2023)

4.2.2.2 Age of respondents

Additionally, it was also observed that 7% of the respondents were less than 30 years of age. Table 4 shows that 13% were aged 31 to 35 years. The findings indicate that 20% of the respondents were aged 36 to 40 years furthermore 29% of the respondents were aged 41 to 45 years. Table 4 shows that 23% of the respondents were aged 46 to 50 years. Finally, only 9% of the respondents were 51 years and above.

Generally, from the study findings, majority of the respondents were 36 years and above implying that the RUWASA had a young and energetic labourforce that strongly uphold procurement risk management practices.

Table 4: Age of respondents.

Response	Frequency	Percentage (%)
Less than 30 years	8	7
31 to 35 years	15	13
36 to 40 years	24	20
41 to 45 years	35	29
46 to 50 years	27	23
Above 51 years	11	9
Total	**360**	**100**

Source: Study findings (2023)

4.2.2.3 Educational level.

The study findings show that 7.5% of the respondents had attained certificate level of education as shown in Table 5. The study findings show that 10% had attained diploma level of education. Furthermore 50.0% had attained a bachelor's degree. The study also found that 27.5% had attained master's degree. Finally, 4.2% has attained PHD.

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Generally, most of the staff at the RUWASA attained a bachelor degree. This implies that the RUWASA have better problem-solving and critical-thinking skills, which can lead to improved supply chain productivity and performance.

Table 5: Educational level.

Response	Frequency	Percentage (%)
Certificate	9	7.5
Diploma	12	10
Bachelor's degree	61	50.8
Master's degree	33	27.5
PhD	5	4.2
Total	**120**	**100%**

Source: Study findings (2023)

4.2.2.4 Period of working at the RUWASA.

Here that study was interested in finding out for how long the respondent has been working at the RUWASA. The study findings show that 4.2% of the respondents had worked at the RUWASA for less than a year. 9.2% had worked for the period between 1 to 4 years. 23.3% had worked for the period between 5 to 7 years. The study findings show that 30% of the respondents had worked for a period of 8 to 10 years. Finally 33.3% of the respondents had worked at the RUWASA for a period of over 10 years.

Generally, from the study findings, most staff had worked at the RUWASA for a period of over 10 years putting them in a good position to fully understand effect of Procurement risk management practices on supply chain performance.

Table 6: Period of working at the RUWASA

Response	Frequency	Percentage (%)
Less than a year	5	4.2
1 to 4 years	11	9.2
5 to 7 years	28	23.3
8 to 10 years	36	30.0
Above 10 years	40	33.3
Total	**120**	**100%**

Source: Study findings (2023)

4.2.3 Descriptive Analysis of the dependent variable

4.2.3.1 Supply chain performance at the RUWASA.

The study sought to assess the supply chain performance at the RUWASA. Whereby;

SD=strongly disagree, D=Disagree, N= Neutral, A=Agree, SA=Strongly agree.

Table 7: Descriptive Analysis of Supply chain performance at the RUWASA

	SA	A	N	D	SD	Mean	Std. Deviation
Procurement efficiency	24(20%)	68(56.7%)	17(14.2%)	8(6.7%)	3(2.5%)	2.43	1.215
Supplier response time	19(15.8%)	73(60.83%)	13(10.8%)	10(8.3%)	5(4.2%)	2.01	1.049
Price accuracy	26(21.7%)	65(54.2%)	10(8.3%)	8(6.7%)	11(9.2%)	2.18	1.216
Supplier reliability	20(16.7%)	70(58.3%)	9(7.5%)	14(11.7%)	7(5.8%	1.84	1.166
Full delivery on requests and proposals	25(20.8%)	72(60%)	12(10%)	6(5%)	5(4.2%)	1.81	1.145
Accuracy of orders delivered	19(15.8%)	64(53.3%)	16(13.3%)	13(10.8%)	8(6.7%)	2.05	1.184
Mean Score range: 1.00-1.79 Strongly agree; 1.80-2.59 agree; 2.60-3.39 Neutral; 3.40-4.19 disagree; 4.20-5.00 Strongly disagree.							

Source: Study findings (2023)

From the table 7 above, most of the respondents, 68(56.7%) agreed that procurement efficiency was ensured at the RUWASA. 24(20%) of the respondents strongly agreed to the statement, 17(14.2%) of the respondents were neutral about the statement. 8(6.7%) of the respondents disagreed that procurement efficiency was ensured at the RUWASA. Only 3(2.5%) strongly disagreed to the statement. A mean of 2, 43 and standard deviation of 1.215 were obtained implying that generally most respondents agreed procurement efficiency was ensured at the RUWASA.

The study findings show that, most of the respondents, 73(60.83%) agreed that suppliers response time was good. 19(15.8%) of the respondents strongly agreed to the statement. 13(10.8%) of the respondents were neutral to the statement. 10(8.3%) of the respondents disagreed to the statement. Only 5(4.2%) strongly disagreed to the statement. A mean of 2.01 and standard deviation of 1.049 were obtained implying that generally the respondents agreed that that supplier's response time was good at the RUWASA.

The findings in Table 7 show that most of the respondents, 65(54.2%) agreed that price accuracy was upheld at the RUWASA. 26(21.7%) of the respondents strongly agreed to the statement. 8(6.7%) of the respondents disagreed to the statement. 10(8.3%) strongly disagreed to the statement. 12(3.3%) were neutral to the statement. A mean of 2.18 and standard deviation of   1.216 implies that most respondents agreed that price accuracy was upheld at the RUWASA.

From the study findings, 70(58.3%) of the total number of respondents agreed that there is supplier reliability. 20(16.7%) of the respondents strongly agreed to the statement. 14(11.7%) of the respondents disagreed to the statement. 9(7.5%) of the respondents were neutral to the statement. finally, 7(5.8%) of the respondents strongly disagreed to the statement. A mean of

1.84 and standard deviation of 1.166 shows that most respondents agreed that there is supplier reliability at the RUWASA.

The study findings show that 72(60%) of the respondents agreed that there was full delivery on requests and proposals. 25(20.8%) of the respondents strongly agreed to the statement. 6(5%) disagreed to the statement. 12(10%) were neutral to the statement. only 5(4.2%) of respondents strongly disagreed with the statement. A mean of 1.81 and standard deviation of 1.145 shows that there was full delivery on requests and proposals.

The study findings show that 19(15.8%) of the respondents strongly agreed that there was accuracy of orders delivered. 64(53.3%) of the respondents agreed to the statement. 16(13.3%) of the respondents were neutral to the statement. 13(10.8%) of the respondents disagreed to the statement. Only 8(6.7%) of the respondents strongly disagreed to the statement. A mean of 2.05 and standard deviation of 1.184 show that most respondents agreed that there was accuracy of orders delivered at the RUWASA.

4.2.4 Descriptive Analysis of the independent variable

4.2.4.1 Descriptive Analysis of the effect of procurement risk identification practices on supply chain performance at the RUWASA

Table 8: extent to which procurement risk identification practices affect supply chain performance at the RUWASA.

	SA	A	N	D	SD	Mean	Std. Deviation
Pre-screening of supplier's Capacity	25(20.8%)	70(58.3%)	12(10%)	9(7.5%)	4(3.3%)	2.13	1.139
Joint specifications writing teams	23(19.2%)	55(45.8%)	22(18.3%)	13(10.8%)	7(5.8%)	2.18	1.067
Periodic Procurement Audits	20(16.7%)	72(60%)	7(5.8%)	18(15%)	3(2.5%)	2.08	1.182
Inventory Forecasting	24(20%)	67(55.8%)	3(2.5%)	21(17.5%)	5(4.2%)	2.1	1.139

	)		)		)		
Pre-Bid meetings with Suppliers	25(20.8%)	62(51.7%)	19(15.8%)	10(8.3%)	4(3.3%)	2.15	1.208
Periodic Quality assessment reviews	26(21.7%)	71(59.2%)	15(12.5%)	6(5%)	2(1.7%)	2.04	1.183
Joint Procurement Planning teams	24(20%)	66(55%)	16(13%)	8(6.7%)	6(5%)	2.29	1.101
Mean Score range: 1.00-1.79 strongly agree; 1.80-2.59 agree; 2.60-3.39 Neutral; 3.40-4.19 disagree; 4.20-5.00 Strongly disagree							

SD=Strongly disagree, D=Disagree, N= Neutral, A=Agree, SA=Strongly agree

Source: Study findings (2023)

From the table 8 above, the findings indicate that most respondents 70(58.3%), agreed that Pre-screening of supplier's Capacity had effect on the supply chain performance at the RUWASA. 25(20.8%) of the respondents strongly agreed to the statement. 12(10%) were neutral to the statement to the statement. 9(7.5%) disagreed that Pre-screening of supplier's Capacity had effect on the supply chain performance at the RUWASA. Only 4(3.3%) strongly disagreed to the statement. A mean of 2.13 and standard deviation of 1.139 implies that most agreed that Pre-screening of supplier's Capacity had effect on the supply chain performance at the RUWASA.

The study findings show that most respondents, that is 55(45.8%) agreed that Joint specifications writing teams affected the supply chain performance at the RUWASA. 23(19.2%) of the respondents strongly agreed to the statement. 13(10.8%) of the respondents disagreed to the statement. 22(18.3%) of the respondents were neutral to the statement. Finally, 7(5.8%) of the respondents strongly disagreed to the statement. A mean of 2.18 and standard deviation of 1.067 indicates that most respondents agreed that Joint specifications writing teams affected the supply chain performance at the RUWASA.

The findings in Table 8 show that most respondents that is 72(60%), agreed that periodic procurement audits affected the supply chain performance at the RUWASA. 20(16.7%) of the respondents strongly agreed to the statement. 18(15%) of the respondents disagreed to the statement. 7(5.8%) of the respondents were neutral to the statement. 3(2.5%) of the respondents strongly disagreed to the statement. A mean of 2.08 and standard deviation of 1.182 implies that most respondents acknowledged that periodic procurement audits affected the supply chain performance at the RUWASA.

The study findings further show that, most respondents, 67(55.8%) agreed that inventory forecasting affected the supply chain performance at the RUWASA. 24(20%) of the respondents strongly agreed to the statement. 21(17.5%) of the respondents disagreed to the statement. 5(4.2%) of the respondents strongly disagreed to the statement. 3(2.5%) of the respondents were neutral to the statement. A mean of 2.1and standard deviation of 1.139shows that most respondents agreed that inventory forecasting affected the supply chain performance at the RUWASA.

As per Table 8 above, most respondents 62(51.7%), agreed that Pre-Bid meetings with Suppliers affected the supply chain performance at the RUWASA. 25(20.8%) of the respondents strongly agreed to the statement. 19(15.8%) of the respondents were neutral to the statement. 10(8.3%) of the respondents disagreed to the statement. 4(3.3%) of the respondents strongly disagreed to the statement. From the study findings, a mean of 2.15 and standard deviation of 1.208 implies that most respondents agreed that Pre-Bid meetings with Suppliers affected the supply chain performance at the RUWASA.

The study findings indicated in Table 8 above shows that, most respondents 66(55%) agreed that joint procurement planning teams affected the supply chain performance at the RUWASA. 24(20%) of the respondents strongly agreed to the statement. 16(13%) of the respondents were neutral to the statement. 8(6.7%) of the respondents disagreed to the statement. 6(5%) of the respondents strongly disagreed to the statement. From the study findings, a mean of 2.29 and standard deviation of 1.101 implies that most respondents agreed that Joint Procurement Planning teams affected the supply chain performance at the RUWASA.

In an indepth interview on the effect of procurement risk identification practices on supply chain performance, interview 1 stated, *"Procurement risk identification practices play a crucial role in influencing supply chain performance. The effectiveness of these practices directly impacts the overall efficiency, resilience, and profitability of the supply chain"*

Interview 2 stated, *"Effective risk identification practices have allowed our organization to proactively identify potential risks in the procurement process. This enabled us to develop appropriate mitigation strategies, such as diversifying suppliers, creating contingency plans, or establishing safety stock levels".*

Interview 3 stated, *"Identifying procurement risks early has helped us to prevent costly supply chain disruptions and delays. For instance, recognizing potential supplier financial instability in advance has enabled the RUWASA to make informed decisions about continuing business relationships, avoiding costly losses due to supplier bankruptcies or non-performance".*

4.2.4.2 Descriptive Analysis of the relationship between stakeholders' involvement and supply chain performance at the RUWASA.

The study sought to find out to what extent does stakeholders' involvement and supply chain performance at the RUWASA. Where SD = Strongly disagree, D=Disagree, N= Neutral,

A=Agree, SA=Strongly agree.

Table 9: Descriptive Analysis of the relationship between stakeholders' involvement and supply chain performance at the RUWASA

	SA	A	N	D	SD	Mean	Std. deviation
Instigating a change	32(26.7%)	63(52.5%)	16(13.3%)	7(5.8%)	2(1.6%)	2.1	1.044
Supporting training or the development of standards	36(30%)	66(55%)	6(5%)	12(10%)	0	1.98	0.947
Facilitating the organization of actors	41(34.2%)	59(49.2%)	15(12.5%)	4(3.3%)	1(0.8%)	1.97	1.013
Leading the SC transformation	34(28.3%)	60(50%)	7(5.8%)	16(13.3%)	3(2.5%)	2.11	1.062
Supply chain (SC) flexibility	29(24.2%)	54(45%)	17(14.2%)	14(11.7%)	6(5%)	2.29	1.101
Resilience and responsiveness,	25(20.8%)	43(35.8%)	19(15.8%)	17(14.2%)	18(15%)	2.65	1.301
Stakeholder Capacity building	40(33.3%)	57(47.5%)	8(6.7%)	14(11.7%)	2(1.6%)	2.03	1.062
Stakeholder Human Resource management	42(35%)	66(55%)	3(2.5%)	8(6.7%)	2(1.6%)	1.85	0.887
Monitoring and Evaluation	44(36.7%)	67(55.8%)	5(4.2%)	2(1.6%)	2(1.6%)	1.79	0.827
Stakeholder communication management	35(29.2%)	60(50%)	18(15%)	4(3.3%)	3(2.5%)	2.08	1.058

Mean Score range: 1.00-1.79 strongly agree; 1.80-2.59 agree; 2.60-3.39 Neutral; 3.40-4.19 disagree; 4.20-5.00 Strongly disagree

Source: Study findings (2023)

From Table 9 above, the study findings show that most respondents, 63(52.5%) agreed that instigating a change affected supply chain performance at the RUWASA. 32(26.7%) of the respondents strongly agreed to the statement. 16(13.3%) were neutral to the statement. 7(5.8%) of the respondents disagreed to the statement. Lastly, 2(1.6%) of the respondents strongly disagreed to the statement. A mean of 2.10 and standard deviation of 1.044 implies

that most respondents agreed that instigating a change affected supply chain performance at the RUWASA.

The study findings show that majority of the respondents that is 66(55%) agreed that supporting training or the development of standards affected supply chain performance at the RUWASA. 36(30%) of the respondents strongly agreed to the statement. 12(10%) of the respondents disagreed to the statement. 6(5%) of the respondents were neutral to the statement. A mean of 1.98 and standard deviation of .947 implies that most respondents acknowledged that supporting training or the development of standards affected supply chain performance at the RUWASA.

The study findings depicted in Table 9 above shows that most respondents, 59(49.2%) agreed that facilitating the organization of actors affected supply chain performance at the RUWASA. 41(34.2%) of the respondents strongly agreed to the statement. 15(12.5%) of the respondents were neutral to the statement. 4(3.3%) of the respondents disagreed to the statement. 1(0.8%) strongly disagreed to the statement. A mean of 1.97 and standard deviation of 1.013 shows that most respondents acknowledged that facilitating the organization of actors affected supply chain performance at the RUWASA.

From the study findings, 60(50%) of the total number of respondents agreed that leading the SC transformation affected supply chain performance at the RUWASA. 34(28.3%) of the total number of respondents strongly agreed to the statement. 16(13.3%) of the total number of respondents disagreed to the statement. 7(5.8%) were neutral to the statement. 3(2.5%) of the total number of respondents strongly disagreed to the statement. A mean of 2.11 and standard

deviation of 1.062 shows that most respondents acknowledged that leading the SC transformation affected supply chain performance at the RUWASA.

The study findings show that 54(45%) of the total number of respondents agreed that Supply chain (SC) flexibility affected supply chain performance at the RUWASA. 29(24.2%) of the total number of respondents strongly agreed to the statement. 17(14.2%) of the total number of respondents were neutral to the statement. 14(11.7%) of the total number of respondents disagreed to the statement. 6(5%) of the total number of respondents strongly disagreed to the statement. A mean of 2.29 and standard deviation of 1.101 shows that most respondents agreed that Supply chain (SC) flexibility affected supply chain performance at the RUWASA.

The study findings show that most of the respondents that is, 43(35.8%) of the total number of respondents agreed that resilience and responsiveness affected supply chain performance at the RUWASA. 25(20.8%) of the total number of respondents strongly agreed to this statement. 19(15.8%) of the total number of respondents disagreed to this statement. 17(14.2%) of the total number of respondents were neutral to this statement. 18(15%) of the total number of respondents strongly disagreed to this statement. The mean of 2.65 and standard deviation of 1.301 is an indicator that most respondents acknowledged that resilience and responsiveness affected supply chain performance at the RUWASA.

Findings in the table 9 above shows, majority of the respondents, 57(47.5%) agreed that Stakeholder Capacity building affected supply chain performance at the RUWASA. 40(33.3%) of the total number of respondents strongly agreed to this statement. 14(11.7%) of the total number of respondents disagreed to this statement. 8(6.7%) of the total number of respondents were neutral to this statement. 2(1.6%) of the total number of respondents strongly disagreed

to this statement. A mean of 2.03 and standard deviation of 1.062 is an indicator that most respondents agreed that resilience and responsiveness affected supply chain performance at the RUWASA.

The findings in Table 9 show that the majority of the respondents 66(55%) acknowledged that Stakeholder Human Resource management affected supply chain performance at the RUWASA. 42(35%) of the total number of respondents strongly agreed to this statement. 8(6.7%) of the total number of respondents disagreed to this statement. 2(1.6%) of the total number of respondents strongly disagreed to this statement. 3(2.5%) of the total number of respondents were neutral to this statement. A mean of 1.85 and standard deviation of 0.887 shows that most respondents acknowledged that Stakeholder Human Resource management affected supply chain performance at the RUWASA.

The study findings show that most of the respondents 67(55.8%) agreed that Monitoring and Evaluation affected supply chain performance at the RUWASA. 44(36.7%) of the total number of respondents strongly agreed to the statement. 5(4.2%) of the total number of respondents were neutral to the statement. 92(1.6%) of the total number of respondents disagreed and were neutral to the statement respectively. A mean of 1.79 and standard deviation of 0.827 shows that Monitoring and Evaluation affected supply chain performance at the RUWASA.

The study findings show that most of the respondents 60(50%) agreed that Stakeholder communication management affected supply chain performance at the RUWASA. 35(29.2%) of the total number of respondents strongly agreed to the statement. 18(15%) of the total number of respondents were neutral to the statement. 4(3.3%) of the total number of respondents disagreed and 3(2.5%) strongly disagreed to the statement respectively. A mean of 1.79 and

standard deviation of 0.827 shows that Stakeholder communication management affected supply chain performance at the RUWASA.

In the indepth interview carried out, respondent 1 stated, *"The relationship between stakeholders' involvement and supply chain performance at the RUWASA has significantly impacted the overall effectiveness and efficiency of the organization's supply chain. Where stakeholders have actively been involved in the supply chain processes, it has led to several positive outcomes and improvements in supply chain performance".*

Interviewee 2 stated that, *"Increased involvement of stakeholders, both internal (e.g., different departments within RUWASA) and external (e.g., suppliers, contractors), fostered better collaboration and communication. This improved communication has helped in aligning objectives, sharing critical information, and addressing potential issues early on, leading to smoother supply chain operations".*

Interview 3 stated, *"Stakeholders' involvement in the supply chain has provided valuable insights into future demand patterns, upcoming projects, and other factors that have influenced procurement and sourcing decisions. Accurate demand forecasting and planning has prevented overstocking or stockouts, optimizing inventory levels, and minimizing costs".*

Interviewee 4 stated*, "Stakeholders' active participation has provided allowance for a more comprehensive understanding of potential risks and challenges in the supply chain. These stakeholders have contributed their expertise in identifying, assessing, and mitigating risks, enhancing the overall resilience of the supply chain".*

4.2.4.3 Descriptive Analysis of the relationship between risk mitigation   strategies

and supply chain performance at the RUWASA.

The study sought to find out the extent to which risk mitigation strategies affected supply chain performance at the RUWASA.

Table 10: Descriptive Analysis of relationship between risk mitigation strategies and supply chain performance at the RUWASA.

	SA	A	N	D	SD	Mean	Std. deviation
Robustness strategy	33(27.8%)	65(53.9%)	5(4.4%)	10(8.3%)	7(5.8%)	2.09	1.053
resilient strategy	25(21.1%)	63(52.5%)	5(4.2%)	15(12.5%)	12(10%)	1.82	0.889
lean strategy	32(26.7%)	61(50.8%)	20(16.7%)	7(5.8%)	0	1.80	1.311
agile strategy	25(20.8%)	56(46.7%)	9(7.5%)	20(16.7%)	0	2.63	1.155
flexible strategy.	35(29.2%)	67(55.8%)	10(8.3%)	0.00%	8(6.7%)	1.99	0.97
Mean Score range: 1.00-1.79 strongly agree; 1.80-2.59 agree; 2.60-3.39 Neutral; 3.40-4.19 disagree; 4.20-5.00 Strongly disagree							

Source: Study findings (2023)

Table 10 above shows that majority of the respondents 65(53.9%) agreed that Robustness strategy affected supply chain performance at the RUWASA. 33(27.8%) of the total number of respondents strongly agreed to the statement. 10(8.3%) of the total number of respondents disagreed to the statement. 7(5.8%) of the total number of respondents strongly disagreed to the statement. 5(4.4%) of the total number of respondents were neutral to the statement. A mean of 2.09 and standard deviation of 1.053 shows that most of the respondents agreed that Robustness strategy affected supply chain performance at the RUWASA.

In relation to resilient strategy, most respondents that is 63(52.5%) agreed that it affected supply chain performance at the RUWASA. 25(21.1%) of the total number of respondents strongly agreed to the statement. 15(12.5%) of the total number of respondents disagreed to the statement. 12(10%) of the total number of respondents strongly disagreed to the statement. Only 5(4.2%) of the respondents were neutral to the statement. A mean of 1.82 and standard

deviation of 0.889 indicates that most respondents acknowledged that resilient strategy affected supply chain performance at the RUWASA.

From Table 10, most respondents, 61(50.8%) agreed that lean strategy affected supply chain performance. 32(26.7%) of the total number of respondents strongly agreed to the statement. 20(16.7%) of the total number of respondents were neutral to the statement. 7(5.8%) of the total number of respondents disagreed to the statement. A mean of 1.80 and standard deviation of 1.311 implies that most respondents acknowledged by agreeing that lean strategy affected supply chain performance at the RUWASA.

The study findings show that most respondents 56(46.7%), agreed that agile strategy affected supply chain performance. 25(20.8%) of the total number of respondents strongly agreed to the statement. Only 9(7.5%) of the total number of respondents were neutral to the statement. Finally, 20(16.7%) of the total number of respondents disagreed to the statement. A mean of 2.63 and standard deviation of 1.155 was obtained implying that generally respondents agreed that agile strategy affected supply chain performance at the RUWASA.

In relation to flexible strategy affecting supply chain performance at the RUWASA, 67(55.8%) of the total number of respondents agreed. 35(29.2%) of the total number of respondents strongly agreed to the statement. 10(8.3%) of the total number of respondents were neutral about the statement. 8(6.7%) of the total number of respondents strongly disagreed to the statement. A mean of 1.99 and standard deviation of o.970 was obtained implying that generally respondents agreed that flexible strategy affected supply chain performance at the RUWASA.

In an indepth interview on the relationship between risk mitigation strategies and supply chain performance at the RUWASA, interviewee 1 stated, *"Risk mitigation strategies have helped to enhance the resilience of the supply chain by identifying potential risks and proactively addressing them. By building a more robust and adaptable supply chain, the RUWASA is better prepared to handle disruptions, whether caused by natural disasters, geopolitical events, or supplier issues".*

Interviewee 2 stated, *"Effective risk mitigation strategies have minimized the occurrence and impacts of supply chain disruptions at the RUWASA. By anticipating and preparing for potential risks, POPS Management can take preventive actions, such as diversifying suppliers or establishing backup plans, which has significantly reduced the frequency and severity of disruptions at the RUWASA".*

Interviewee3 stated, *"Risk mitigation strategies often involve closer collaboration and communication with suppliers. Building strong relationships with key suppliers has led to better performance, more reliable deliveries, and improved overall supply chain efficiency at the RUWASA".*

Interviewee 4 stated, *"Mitigating supply chain risks has provided allowance for more effective inventory management. With better visibility into potential risks, at the RUWASA has optimized on inventory levels to ensure the right amount of stock is available without overstocking, thereby reducing carrying costs".*

4.2.5 Correlations Analysis

The study further sought to establish the correlation between the independent and dependent

variables. The Pearson's product moment correlation analysis was used to assess the strength

of the relationship between the variables.

Table 11: Correlation between procurement risk identification practices, stakeholders' involvement, risk mitigation strategies and supply chain performance

		procurement risk identification practices	stakeholders' involvement	risk mitigation strategies	supply chain performance
procurement risk identification practices	Pearson Correlation	1	.251	.034	.654***
	Sig. (2-tailed)		.678	.926	.000
	N	40	40	40	40
stakeholders' involvement	Pearson Correlation	.251	1	.934**	.934**
	Sig. (2-tailed)	.678		.000	.000
	N	40	40	40	40
risk mitigation strategies	Pearson Correlation	.034	.934**	1	
	Sig. (2-tailed)	.926	.000		
	N	40	40	40	40
supply chain performance	Pearson Correlation	.654***	.934**	.817**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	40	40	40	40

**. Correlation is significant at the 0.01 level (2-tailed).

4.2.5.1 The effect of procurement risk identification practices on supply chain performance at the RUWASA

Results from Table 11 above show that there was a positive and significant relationship between risk identification practices and supply chain performance (r =.654***, p-value<0.01). The implies that Pre-screening of supplier's Capacity, Joint specifications writing teams, Periodic Procurement Audits, Inventory Forecasting, Pre-Bid meetings with Suppliers, Periodic Quality assessment reviews and Joint Procurement Planning teams had a positive effect in terms of Procurement efficiency, Timeliness, Price accuracy and finally Supplier reliability.

4.2.5.2 The relationship between stakeholders' involvement and supply chain

performance at the RUWASA.

The study findings show that stakeholders' involvement had a positive and significant relationship with supply chain performance (r =.934**, p-value<0.01). The implies that; Instigating a change, supporting training or the development of standards, facilitating the organization of actors, Leading the SC transformation, Supply chain (SC) flexibility, Resilience and responsiveness, Stakeholder Capacity building, Stakeholder Human Resource management, Monitoring and Evaluation and Stakeholder Communication Management had a positive effect in terms of Procurement efficiency, Timeliness, Price accuracy and finally Supplier reliability at the RUWASA.

4.2.5.3 The relationship between risk mitigation strategies and supply chain performance at the RUWASA.

From the study findings in Table 11, risk mitigation strategies a positive and significant relationship with financial Inclusion (r =.817**, p-value<0.01). The findings imply that; Robustness strategy, resilient strategy, lean strategy, agile strategy and flexible strategy had a positive effect in terms of Procurement efficiency, Timeliness, Price accuracy and finally Supplier reliability at the RUWASA.

4.2.6   Model Evaluation

The study adopted a multiple regression analysis to determine the variation caused by the independent variables and moderating variable. These included procurement risk identification practices, stakeholders' involvement and risk mitigation strategies. The dependent variable was supply chain performance at the RUWASA.

Table 12: Model evaluation results

Model	R	R Square	Model Summary	St. Error of the Estimate

1	.974	.938	.938	.226

a. Predictors: (Constant) procurement risk identification practices,stakeholders' involvement and risk mitigation strategies.

From the above table 12, it was established that 94.6% of the variation in supply chain performance at the RUWASA can be explained by the independent (procurement risk identification practices, stakeholders' involvement and risk mitigation strategies). This implies that the remaining 6.2% of the variation in supply chain performance is explained by variables that the study didn't capture.

Table 13: Analysis of variance

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	70.953	5	14.191	18.947	.000[b]
Residual	44.213	59	0.749		
Total	15.166	64			

a. Dependent Variables: supply chain performance

b. Predictors: (Constant) procurement risk identification practices, stakeholders' involvement, risk mitigation strategies

The results in Table 13 above indicate that the regression model was significant in predicting how risk identification practices, stakeholders' involvement, and risk mitigation strategies affect supply chain performance at the RUWASA because the p-value was P=0.000 which is less than 0.05 (P<0.05).

Table 14: Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients

	Beta	Std. Error	Beta	t	Sig
1 (Constant)	.201	.122		1.653	.103
Procurement risk identification practices	.363	.055	.712	4.529	.001
Stakeholders' involvement	.385	.035	.790	2.269	.000
Risk mitigation strategies	.246	.029	.608	2.660	.002

a. Dependent Variable: supply chain performance

Table 14 above presents the results of multiple regression analysis model indicating how risk identification practices, stakeholders' involvement, and risk mitigation strategies affect supply chain performance at the RUWASA.

The results revealed that risk identification practices had a positive statistically significant relationship with supply chain performance with the p-value (0.01) less than 0.05 (p<0.05) and the coefficient at 0.712. This implies that the unit change in supply chain performance on average increased supply chain performance by 71.2%.

The coefficient of Stakeholders' involvement was positively associated with supply chain performance at 0.790 which was significant with a p-value (0.000) less than 0.05 (p < 0.05). This implies that the unit increase in the level of Stakeholders' involvement led to 79.0% decrease in the overall supply chain performance.

The findings also showed that Risk mitigation strategies had a positive and significant relationship with supply chain performance with a co-efficient of .608 and p-value P=0.002, an implication that on average a unit increase in the level of Risk mitigation strategies results into a 60.8% increase in the supply chain performance.

4.3 Discussion of findings

4.3.1 The effect of procurement risk identification practices on supply chain performance at the RUWASA.

On the effect of procurement risk identification practices on supply chain performance at the RUWASA, there was a positive and significant relationship between risk identification practices and supply chain performance (r =.654***, p-value<0.01). The implied that Pre-screening of supplier's Capacity, Joint specifications writing teams, Periodic Procurement Audits, Inventory Forecasting, Pre-Bid meetings with Suppliers, Periodic Quality assessment reviews and Joint Procurement Planning teams had a positive effect in terms of Procurement efficiency, Timeliness, Price accuracy and finally Supplier reliability. The study findings concur with Mburu, et al. (2015) that assessed the effect of risk identification management strategy on supply chain performance in manufacturing companies in Kenya and found out that companies can only ensure there is adequate cost reduction along supply chain function through use of activities-based contracts with clean cost management targets, setting annual savings target and reporting achieved saving monthly and competitive bidding, purchasing from suppliers and delivering to customers economic quantities and majority of the companies build alliances through supply chain systems. According to the study findings, in order to enhance a smooth performing of supply chain in a company given the changing nature of markets due to increased diversity adequate risk identification and management is inevitable. All in all, the study stressed that hedging against risk management strategies improved supply chain performance at great extent and risk Analysis & Evaluation management strategies, risk Monitoring & Control management strategies and risk Identification management strategies improving supply chain performance at moderate extent. The study findings also concur with Fozia, (2022) that aimed at establishing the impact of procurement risk Identification practices

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on supply chain management performance at ITS GOVINDA & SONS (K) LTD construction company and noted that the value of R squared was 0.499 which meant 49.9% of supply chain performance at ITS GOVINDA SONS (K) LIMITED Construction Company was explained by risk identification techniques. The hypothesis was rejected and thus risk identification has an effect on supply chain performance.

4.3.2 The relationship between stakeholders' involvement and supply chain performance at the RUWASA.

On the relationship between stakeholders' involvement and supply chain performance at the RUWASA, the study findings showed that stakeholders' involvement had a positive and significant relationship with supply chain performance (r =.934**, p-value<0.01). The implied that; Instigating a change, Supporting training or the development of standards, facilitating the organization of actors, Leading the SC transformation, Supply chain (SC) flexibility, Resilience and responsiveness, Stakeholder Capacity building, Stakeholder Human Resource management, Monitoring and Evaluation and Stakeholder Communication Management had a positive effect in terms of Procurement efficiency, Timeliness, Price accuracy and finally Supplier reliability at the RUWASA. The findings concur with Fozia, (2022) who investigated the role of the stakeholder's relationship with supply chain resilience (SCR) and organizational performance (OP) using the lens of stakeholder theory in the manufacturing and service industry and revealed that supplier relationship (SR) and customer relationship (CR) have a positive and significant impact on SCR and a positive and significant relationship between SCR and OP. A positive and significant relationship between customer relationship and OP was also noted. The mediating role of SCR is also found positive and significant.

4.3.3 The relationship between risk mitigation strategies and supply chain performance at the RUWASA.

On the relationship between risk mitigation strategies and supply chain performance at the RUWASA, risk mitigation strategies a positive and significant relationship with financial Inclusion (r =.817**, p-value<0.01). The findings imply that; Robustness strategy, resilient strategy, lean strategy, agile strategy and flexible strategy had a positive effect in terms of Procurement efficiency, Timeliness, Price accuracy and finally Supplier reliability at the RUWASA. The study findings are in line with Saglam, et al., (2021) that focused on exploring the relationship between significant proactive risk mitigation strategies and supply chain risk management performance for manufacturing firms in Turkey and noted that SC resilience and responsiveness was positively associated with SCRM performance; however, SC flexibility did not. In addition, interestingly, RM culture did not moderate these relationships in spite of the extant literature. The findings also concur Owuso, & Poi, (2019) who examined the effect risk mitigation on sales performance of petroleum marketing firms in Nigeria and revealed risk mitigation strategy positively affected profit, while risk mitigation strategy did not have any significant effect on sales growth. The study recommended that Petroleum marketing firms analyze the identified risk and ensure that they deploy a strategy that best suit the peculiar situation of risk identified.

4.4 Summary

This chapter has provided a detailed analysis of data collected data and correlated with the existing studies. Some of the key findings included; On the effect of procurement risk identification practices on supply chain performance at the RUWASA, there was a positive and significant relationship between risk identification practices and supply chain performance (r =.654***, p-value<0.01). The implied that Pre-screening of supplier's Capacity, Joint

specifications writing teams, Periodic Procurement Audits, Inventory Forecasting, Pre-Bid meetings with Suppliers, Periodic Quality assessment reviews and Joint Procurement Planning teams had a positive effect in terms of Procurement efficiency, Timeliness, Price accuracy and finally Supplier reliability.

On the relationship between stakeholders' involvement and supply chain performance at the RUWASA, the study findings showed that stakeholders' involvement had a positive and significant relationship with supply chain performance (r =.934**, p-value<0.01). The implied that; Instigating a change, supporting training or the development of standards, facilitating the organization of actors, Leading the SC transformation, Supply chain (SC) flexibility, Resilience and responsiveness, Stakeholder Capacity building, Stakeholder Human Resource management, Monitoring and Evaluation and Stakeholder Communication Management had a positive effect in terms of Procurement efficiency, Timeliness, Price accuracy and finally Supplier reliability at the RUWASA.

On the relationship between risk mitigation strategies and supply chain performance at the RUWASA, risk mitigation strategies a positive and significant relationship with financial Inclusion (r =.817**, p-value<0.01). The findings imply that; Robustness strategy, resilient strategy, lean strategy, agile strategy and flexible strategy had a positive effect in terms of Procurement efficiency, Timeliness, Price accuracy and finally Supplier reliability at the RUWASA.

CHAPTER FIVE

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Chapter overview

This chapter provides the general conclusion of the study in the light of what is discussed in chapter four. The conclusion of the study covers the effect of; procurement risk identification practices, stakeholders' involvement and risk mitigation strategies on supply chain performance at the RUWASA. Furthermore, the general recommendation is provided regarding findings, observation and view of the researcher. The purpose of the recommendations is to inform the RUWASA and other public entities in Tanzania on the effect that procurement risk management practices have on supply chain performance. So, all in all; this chapter presents conclusions concerning the findings obtained and thereafter gives the appropriate recommendations in line with findings and consequent conclusion. Finally, an area that needs further study is provided purposely to fill the existing gaps.

5.2 Conclusion

Basing on the study findings where risk identification practices had a positive statistically significant relationship with supply chain performance with the p-value (0.01) less than 0.05 (p<0.05) and the coefficient at 0.712 implying that the unit change in supply chain performance on average increased supply chain performance by 71.2%.

Stakeholders' involvement was positively associated with supply chain performance at 0.790 which was significant with a p-value (0.000) less than 0.05 (p < 0.05) implying that the unit increase in the level of Stakeholders' involvement led to 79.0% decrease in the overall supply chain performance.

Risk mitigation strategies had a positive and significant relationship with supply chain performance with a co-efficient of .608 and p-value P=0.002, an implication that on average a

unit increase in the level of Risk mitigation strategies results into a 60.8% increase in the supply chain performance.

All in all, the RUWASA, procurement risk identification practices, stakeholders' involvement and risk mitigation strategies had significant effect on supply chain performance.

5.3   Recommendations

Given the conclusions and observations reported herein, the following recommendations are presented below:

i.   The RUWASA should continuously carryout pre-screening of supplier's Capacity so as to maintain proper supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability.

ii.   The government through public entities more so the RUWASA should ensure that Periodic Procurement Audits are carried out so as to ensure good supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability.

iii.   The RUWASA should ensure that Inventory Forecasting is properly carried out to ensure good supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability.

iv.   The government of Tanzania should ensure that all its entities carryout Pre-Bid meetings with Suppliers to ensure good supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability.

v.   Periodic Quality assessment reviews should be continuously carried out at the RUWASA to ensure good supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability.

vi.   The RUWASA should continue Supporting training or the development of standards so as to ensure good supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability

vii. The RUWASA should continuously ensure Supply chain (SC) flexibility for good supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability

viii. The government of Tanzania should continuously ensure that Resilience, responsiveness, Stakeholder Capacity building and Monitoring and Evaluation ere up held in their entities so as to attain good supply chain performance in terms of; Procurement efficiency, Timeliness, Price accuracy and Supplier reliability.

5.4   Critical Evaluation of the study

The study provides empirical evidence supporting the positive association between procurement risk management practices and supply chain performance. the study relies on self-reported data from procurement professionals, which may be subject to response bias or misinterpretation of questions. Additionally, the use of cross-sectional data does not allow for causal inferences, and future research should consider longitudinal or experimental designs to establish causal relationships. Finally, the study does not explore potential interactions with external factors such as economic conditions or political stability, which may also influence supply chain performance. Despite these limitations, this study provides valuable insights into the relationship between procurement risk management practices and supply chain performance in the public sector in Tanzania.

5.5   Suggestions for Further Studies

As the findings of this study are based on only public sector entity, there is a need to conduct more empirical research on the effect of procurement risk management practices on supply

chain performance in public sector in Tanzania. By doing so supply chain performance will be improved in the public sector.

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APPENDICES

Appendix 1: Questionnaires for staff

This study is based at the Institute of Accountancy Arusha. Its major objective is to evaluate effect of Procurement risk management practices on supply chain performance in public sector in Tanzania, specifically at the RUWASA specifically. You are kindly requested to participate in this study by filling in this short questionnaire. In case the final account of this work may contain confidential information and its report could be harmful to the organization or individual, confidentiality is assured by the university. Such a report will be seen only by the Supervisor and Examiner for examination purposes.

SECTION A: RESPONDENTS INFORMATION

1)   Please tick √ appropriately on the following:

A.1. Gender of the respondents

☐ Male

☐ Female

A.2 Age of the respondents

☐ Less than 30 years

☐ 31 to 35 years

☐ 36 to 40 years

☐ 41 to 45 years

☐ 46 to 50 years

☐ Above 51 years

A.3. Education level of the respondents

☐ Certificate

☐ Diploma

☐ Bachelor's degree

☐ Master's degree

☐ PhD

☐ Other

A.4. For how long have you been working at the RUWASA?

☐ Less than a year

☐ 1 to 4 years

☐ 5 to 7 years

☐ 8 to 10 years

☐ Above 10 years

B: THE EFFECT OF PROCUREMENT RISK IDENTIFICATION PRACTICES ON SUPPLY CHAIN PERFORMANCE AT THE RUWASA.

B.5 To what extent do procurement risk identification practices affect supply chain performance at the RUWASA. Where 1-Very Large extent,2-Large Extent, 3-To a moderate extent, 4- to a little extent and lastly 5- to no extent.

	1	2	3	4	5
Pre-screening of supplier's Capacity					
Joint specifications writing teams					
Periodic Procurement Audits					
Inventory Forecasting					
Pre-Bid meetings with Suppliers					
Periodic Quality assessment reviews					
Joint Procurement Planning teams					

SECTION C: THE RELATIONSHIP BETWEEN STAKEHOLDERS' INVOLVEMENT AND SUPPLY CHAIN PERFORMANCE AT THE RUWASA.

C.6 To what extent does stakeholders' involvement and supply chain performance at the RUWASA? Where 1-Very Large extent,2-Large Extent, 3-To a moderate extent, 4- to a little extent and lastly 5- to no extent.

	1	2	3	4	5
instigating a change					
supporting training or the development of standards					
facilitating the organization of actors					
leading the SC transformation					
supply chain (SC) flexibility					
resilience and responsiveness					
Stakeholder Capacity building					
Stakeholder Human Resource management					
Monitoring and Evaluation					
Stakeholder Communication Management					

SECTION D: THE RELATIONSHIP BETWEEN RISK MITIGATION STRATEGIES AND SUPPLY CHAIN PERFORMANCE AT THE RUWASA.

C.7 To extent do risk mitigation strategies affect supply chain performance at the RUWASA? Where 1-Very Large extent,2-Large Extent, 3-To a moderate extent, 4- to a little extent and lastly 5- to no extent.

	1	2	3	4	5
Robustness strategy					
resilient strategy					
lean strategy					
agile strategy					
flexible strategy.					

Thank you so much for participating in this study.

Appendix 2: Interview guide

1) What position do you hold at the RUWASA?

2) For how long have you worked at the RUWASA?

3) What is the effect of procurement risk identification practices on supply chain performance at the RUWASA?

4) What is the relationship between stakeholders' involvement and supply chain performance at the RUWASA?

5) What is the relationship between risk mitigation strategies and supply chain performance at the RUWASA?

Thank you very much for participating in this study.

Appendix 3: Fieldwork Time Table (Work plan)

Activity / Period	2023									
Months	1	2	3	4	5	6	7	8	5	6
Concept note ideation	X									
Materials gathering		X								
Proposal preparation		X	X							
Developing data collection tools		X	X							
Pre-testing questionnaires		X	X	X						
Data collection					X	X				
Data Processing					X	X				
Data analysis							X	X		
Report writing							X	X		
Presentation of findings.							X	X		
Publication of papers									X	
Thesis production									X	X

Appendix 4: Research budget

No	Item	Quantity	Per Qty	Total
1	Proposal paper Preparation	N/A	300,000	300,000
2	Books	10	40,000	400,000
3	Printing and Binding	10 times	50,000	500, 000
4	Data collection (meals and accommodations)	10	50,000	500,000
5	Data processing, analysis and presentations	14 days	50,000	700,000
6	Report writing (Stationary)	6	50,000	300,000
7	Miscellaneous	N/A	N/A	800,000
	TOTAL			**3,500,000**

Appendix 5: Letter of introduction

Institute of Accountancy Arusha

P.O. Box 2798, Njiro Hill, Arusha, Tanzania

Telephone: +255 27 2970232   Mobile: +255 763 462109   Telex: 50009 IAA TZ
Fax: +255 27 2970234   Email: iaa@iaa.ac.tz   Website: www.iaa.ac.tz

Ref. No.: MPSM-04-0100-2022   **21st August 2023**

....
....
P.O.BOX...........................
....

Dear Sir/Madam,

RE   :   REQUEST FOR DATA COLLECTION

The purpose of this letter is to introduce to you **Ms. ANNA LEWIS NCHINDIUZA.** who is our student pursuing Masters of Business Administration in Procurement and Supplies Management with registration number (MPSM-04-0100-2022). Currently, the aforementioned student is conducting a study on **"EFFECT OF PROCUREMENT RISK MANAGEMENT PRACTICES ON SUPPLY CHAIN PERFORMANCE IN PUBLIC SECTOR IN TANZANIA: THE CASE OF RURAL WATER SUPPLY AND SANITATION AGENCY (RUWASA)".** We would like to highlight here that this study is part of the requirement for the award of the above mentioned programme of study.
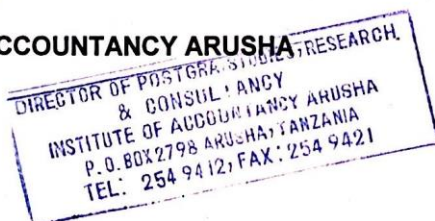
We therefore request you to extend to the above-mentioned student of our Institute any help that may facilitate her to achieve study objectives. We further request permission for her to see and talk to the staff of your Institution in connection to her study. The period for this request is granted from August to end of October 2023.

Thank you for your continuing support.

Yours Sincerely,
INSTITUTE OF ACCOUNTANCY ARUSHA

DIRECTOR OF POSTGRADUATE STUDIES, RESEARCH
& CONSULTANCY
INSTITUTE OF ACCOUNTANCY ARUSHA
P.O.BOX 2798 ARUSHA, TANZANIA
TEL: 254 9412, FAX: 254 9421

Mishael Abduel
FOR: RECTOR

Appendix 6: Informed Consent of Research Participants

Dear Respondent,

I am **Anna Lewis Nchindiuza,** a student of Institute of Accountancy Arusha. I kindly ask you to take part in my research study called: **Effect of Procurement risk management practices on supply chain performance in public sector in Tanzania: The case of the Rural Water Supply and Sanitation Agency (RUWASA) in Dodoma.**

The purpose of this study is to:

    i.   To examine the effect of procurement risk identification practices on supply chain performance at the RUWASA.

    ii.   To examine the relationship between stakeholders' involvement and supply chain performance at the RUWASA.

    iii.   To show the relationship between risk mitigation strategies and supply chain performance at the RUWASA.

You are being asked to participate in this study, as you are an adult staff who can help us to better understand the effect of procurement risk management practices on supply chain performance in public sector in Tanzania.

If you take part in this study, you will be asked to take part in filling a one-time questionnaire, this will take about 30 minutes and it will take place at allocation most convenient to you as the participant.

There may be no direct benefits associated with your participation in the study, but the information you will provide will be useful in formulating policies that ensure and encourage the observation and upholding of procurement risk management practices to ensure good supply chain performance.

This research is considered to be minimal risk. That means that the risks associated with this study are the same as what you face every day. There are no known additional risks to those who take part in this study.

There will be no compensation for research participation in this study.

We will keep your study records private and confidential. Certain people may need to see your study records. By law, anyone who looks at your records must keep them completely confidential. The only people who will be allowed to see these records are:

The research team, including the Principal Investigator and those involved with the study.

I may publish what I have learnt from this study. If I do, I will not include your name. I will not publish anything that would let people know who you are.

You will only take part in this study if you want to volunteer. There will not be any pressure to take part in the study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study.

If you have any questions, concerns or complaints about this study, or experience an adverse event or unanticipated problem, contact the researcher on +255655713044 If you have questions about your rights as a participant in this study, general questions, or have complaints, concerns or issues you want to discuss with someone outside the research, call the research department of Institute of Accountancy Arusha.

Assessment of understanding

Please check which box best describes your assessment of understanding of the above informed consent document:

☐ I have read the above informed consent document and understand the information provided to me regarding participation in the study and benefits and risks. I give consent

to take part in the study and will sign the following page.

☐ I have read the above informed consent document, but still have questions about the study; therefore I do not give yet give my full consent to take part in the study.

_____   _____

Signature of Person Taking Part in Study   Date

_____

Name of the Person Taking Part in Study

_____

Thumb print of Person Taking Part in Study

_____   _____

Signature of Person Obtaining Informed Consent/Research Authorization   Date

_____

Printed Name of Person Obtaining Informed Consent/Research Authorization