

**THE ROLE OF SUSTAINABLE PACKAGING IN REDUCING WASTE AND  
ENVIRONMENTAL IMPACT: A CASE STUDY OF MUKWANO INDUSTRIES  
UGANDA LIMITED**

**MERCY AKANKUNDA**

**S21B12/149**

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

**October, 2024**



**UGANDA CHRISTIAN  
UNIVERSITY**

*A Centre of Excellence in the Heart of Africa*

**DECLARATION**

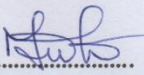
I, AKANKUNDA MERCY, hereby declare that this research report is my original piece of work and has not been presented to any institution of learning for any academic award.

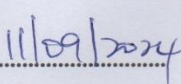
Signed ..... AM ..... Date..... 13/9/24 .....

AKANKUNDA MERCY

### APPROVAL

This research titled The Role of Sustainable Packaging in Reducing Waste and Environmental Impact. (A Case Study of Mukwano Industries Uganda Limited.) has been submitted by AKANKUNDA MERCY for examination with my approval and is ready for presentation to the school of Business for award of a Bachelor's Degree in Procurement and logistics management of Uganda Christian University.

Signature: 

Date: 

**MR. DUNCAN TUMUHAMYÉ**

(Academic Supervisor)

## **APPROVAL**

This research titled The Role of Sustainable Packaging in Reducing Waste and Environmental Impact. (A Case Study of Mukwano Industries Uganda Limited.) has been submitted by AKANKUNDA MERCY for examination with my approval and is ready for presentation to the school of Business for award of a Bachelor’s Degree in Procurement and logistics management of Uganda Christian University.

Signature: ..... Date: .....

**MR. DUNCAN TUMUHAMYE**

(Academic Supervisor)

## DEDICATION

I would like to dedicate this research work to my parents, my brothers, sisters and all the family members for the impact they have contributed towards my education.

## ACKNOWLEDGEMENT

I give glory and appreciation to the Almighty God for standing with me in the pursuit of this study. Furthermore, I am grateful and greatly indebted to my supervisor for the efforts and guidance he put in to ensure that this work is completed and sparing his precious time for me. I am indeed grateful and humbled to him.

In addition, my heartfelt thanks go to all my friends and course mates, who helped me and managed to go through despite the hard times. I thank them for their guidance in matters of coursework and research whenever contacted.

Special thanks go to all my lecturers from whom I acquired knowledge and skills that have enabled me to be who I am today.

## ABSTRACT

This study explores the role of sustainable packaging in reducing waste and mitigating environmental impact, with a focus on Mukwano Industries Uganda Limited. As environmental concerns become increasingly critical, the packaging industry faces pressure to adopt sustainable practices that minimize ecological footprints. This research investigates the strategies employed by Mukwano Industries in integrating sustainable packaging solutions, evaluating their effectiveness in reducing waste and overall environmental impact. The study objectives were, to find out the strategies employed by Mukwano Industries in sustainable packaging initiatives, to measure the extent to which sustainable packaging reduces waste generation and environmental impact compared to traditional packaging, and lastly to find out the challenges and opportunities associated with sustainable packaging in Uganda concept. The study employs a mixed-methods approach, combining quantitative analysis of waste reduction data with qualitative insights from industry employees and stakeholders. Findings indicate that Mukwano Industries' adoption of sustainable packaging materials and practices has led to significant reductions in waste generation and environmental harm. The study concludes that sustainable packaging is not only a viable strategy for waste reduction but also a crucial component of corporate responsibility in the industrial sector. Recommendations are provided for further enhancing sustainability efforts within Mukwano Industries and the broader packaging industry in Uganda.

## TABLE OF CONTENTS

DECLARATION.....	Error! Bookmark not defined.
APPROVAL.....	Error! Bookmark not defined.
DEDICATION.....	vi
ACKNOWLEDGEMENT.....	vii
ABSTRACT.....	viii
TABLE OF CONTENTS.....	ix
CHAPTER ONE.....	1
1.0 Introduction.....	1
1.2 Statement of the Problem.....	1
1.4 Objectives of the study.....	2
1.4.1 General objective.....	2
1.4.2 Specific objective.....	2
1.6 Significance of the study.....	2
LITERATURE REVIEW.....	4
2.1 The Strategies Employed by Mukwano Industries in Sustainable Packaging Initiatives.....	4
RESEARCH DESIGN AND METHODOLOGY.....	10
3.0 Introduction.....	10
3.1 Research Design.....	10
3.2 Study Population.....	10
3.3 Study Sample size.....	10
The sample size was determined using the Krejci and Morgan table as shown below.	10
3.4 Sampling Techniques.....	11

3.5 Data Collection Methods .....	11
3.5.2 Primary sources.....	11
3.5.3 Secondary sources .....	12
3.6 Data collection tools/instruments .....	12
3.6.1 Questionnaire .....	12
3.6.2 Interview guide .....	12
3.7 Procedure for Data Collection .....	12
3.8 Validity and Reliability of Data Instruments .....	13
3.8.1 Validity .....	13
3.8.1 Reliability .....	13
3.9 Data Processing and Analysis .....	13
3.10 Ethical considerations .....	14
CHAPTER FOUR .....	14
DATA REPRESENTATION INTERPRETATION AND ANALYSIS OF DATA. ....	15
4.1 Introduction.....	15
4.2 Response rate. ....	15
4.2.2 Background characteristics of respondents.....	15
4.3.1 To find out the strategies employed by Mukwano Industries in Sustainable Packaging Initiatives. ....	19
4.3.2 . To measure the extent to which sustainable packaging reduces waste generation and environmental impact compared to traditional packaging. ....	20
4.3.3 To find out the challenges and opportunities associated with Sustainable Packaging in the Ugandan Context .....	22
5.0 Introduction. ....	24
5.1 Discussion of findings. ....	24

5.1.1 Strategies Employed by Mukwano Industries in Sustainable Packaging Initiatives .....	<b>Error! Bookmark not defined.</b>
5.1.3 The challenges and opportunities associated with Sustainable Packaging in the Ugandan Context.....	<b>Error! Bookmark not defined.</b>
REFERENCES .....	29
QUESTIONNAIRE.....	31

## CHAPTER ONE

### 1.0 Introduction

This study explored how sustainable packaging can significantly contribute to reducing waste and lessening environmental impact. In an era where managing waste and protecting the environment are increasingly pressing issues, packaging—despite its crucial role in safeguarding products and ensuring convenience—has come under scrutiny for its environmental footprint. Traditional packaging methods often lead to substantial ecological harm, which has spurred a growing movement toward adopting more sustainable practices.

This chapter introduces the study by laying out the background that frames the research context. It identifies the central problem of environmental degradation caused by conventional packaging, outlines the study's objectives, and specifies its scope. The chapter also presents the research questions that will guide the investigation and underscores the importance of examining sustainable packaging to promote environmental sustainability.

### 1.2 Statement of the Problem

Conventional packaging materials are a major cause of pollution, trash accumulation, and resource depletion, among other environmental problems (Geyer et al., 2017). Although the advantages of environmentally friendly packaging are generally acknowledged in theory, there is a dearth of empirical information regarding the effectiveness of these practices in actual environments, particularly in particular industrial contexts such as Mukwano Industries Uganda Ltd. Research indicates that sustainable packaging can help reduce waste and lessen its negative effects on the environment (Hopewell et al., 2009; Plastics Europe, 2019). However, there is still a lack of understanding regarding the practicality of these benefits, their viability from an economic standpoint, and the difficulties that arise in putting them into practice (Kirchherr et al., 2017). By examining how sustainable packaging can efficiently lower waste and the environmental impact at Mukwano Industries Uganda Ltd., this study aims to close this gap.

### **1.3 Purpose of the Study**

This study set out to investigate how Mukwano Industries Uganda Ltd. may, in particular, minimize waste and its negative effects on the environment through the use of sustainable packaging practices. The study intends to provide light on these methods' usefulness and efficacy by investigating them in an actual setting.

### **1.4 Objectives of the study.**

#### **1.4.1 General objective.**

To examine the role of sustainable packaging in reducing waste and environmental impact at Mukwano Industries Ltd.

#### **1.4.2 Specific objectives**

- i. To find out the strategies employed by Mukwano Industries in Sustainable Packaging Initiatives.
- ii. To measure the extent to which sustainable packaging reduces waste generation and environmental impact compared to traditional packaging.
- iii. To find out the challenges and opportunities associated with Sustainable Packaging in the Ugandan Context.

### **1.5 Research questions:**

1. What are the strategies employed by Mukwano Industries in Sustainable Packaging initiatives?
2. To what extent does sustainable packaging reduce waste generation and environmental impact compared to traditional packaging?
3. What are the challenges and opportunities associated with Sustainable Packaging in the Ugandan context?

### **1.6 Significance of the study.**

This study on the role of sustainable packaging is crucial for several reasons:

1. **Resource Efficiency:** Sustainable packaging frequently utilizes materials that are biodegradable, recyclable, or derived from renewable sources. By evaluating the effectiveness of these materials, this study illustrates how these materials help to improve resource efficiency by assessing their efficacy. This lessens the influence that packaging manufacture and disposal have on the environment and highlights how crucial resource conservation is to attaining sustainable development.

2. **Economic Impact:** Businesses must consider a number of factors while making the switch to sustainable packaging. It has an impact on brand reputation and environmental law compliance in addition to the initial cost considerations. Through alignment with environmentally conscious consumer expectations, sustainable packaging may boost business growth, differentiate brands in a competitive market, and save money over the long run. This study will clarify these points.

3. **Consumer Behavior:** As people become more conscious of the environment, they favor products that come in sustainable packaging.

#### 4. **Policy Development:**

The study's findings can help shape effective policies as governments and regulatory bodies push for reduced environmental impacts. The study can also help shape policy development by guiding policymakers in developing stronger and more impactful environmental regulations by assessing the success of sustainable packaging initiatives.

5 . **Innovation and Technological Advancement:** The shift to sustainable packaging is driving innovation in materials science and packaging technology. This study will highlight advancements in sustainable packaging solutions, encouraging further research and development in this critical area.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

This chapter presents the literature reviewed in relation to the research objectives in chapter one. The information is a combination of extracts, paraphrased statements from textbooks, Pamphlets, journals, magazines, websites, publications and other official reports related to role of sustainable packaging in reducing waste and environmental impact.

#### 2.1 The Strategies Employed by Mukwano Industries in Sustainable Packaging Initiatives

Mukwano Industries, a prominent industrial player in Uganda, has made significant strides in integrating sustainability into its operations. The company's approach to sustainable packaging is a key aspect of its broader environmental strategy. This review explores the specific strategies Mukwano Industries employs to advance sustainable packaging, drawing insights from various sources.

##### 1. Use of Recycled Materials

Mukwano Industries has made recycled materials a cornerstone of its packaging solutions. In an effort to lessen the environmental impact of raw material extraction and processing, the company uses post-consumer recycled plastics in its packaging. As stated by Owino (2021), this change promotes the circular economy model in addition to lowering dependency on virgin plastics. The environmental benefits of employing recycled materials are further highlighted by Clarke et al. (2022), which supports Mukwano's dedication to reducing its environmental impact.

##### 2. Development of Biodegradable Packaging

Mukwano has made investments in the development of biodegradable packaging solutions in response to environmental concerns throughout the world. Amanywa (2022) points out that the

business is looking at substitutes like bioplastics, which are created from renewable resources like sugarcane and maize starch. These materials can help with long-term trash problems because they decompose faster than conventional plastics. In line with Mukwano's initiatives, Singh and Sharma (2023) emphasize the significance of biodegradable solutions in lowering plastic pollution.

### 3. Adoption of Minimalist Packaging Designs

In an effort to use less materials, Mukwano Industries has also adopted minimalist packaging designs. The company lowers material waste and the packaging process' carbon impact by designing packaging that protects the product with less materials. According to Muwonge et al. (2023), Mukwano's methods, as previously mentioned by Smith and Thompson (2021), are consistent with the trend of minimalist packaging being an effective means of improving package efficiency.

### 4. Investment in Eco-Friendly Manufacturing Processes

Mukwano has made an investment in technology that lowers emissions and energy consumption as part of its commitment to environmentally responsible manufacturing practices. According to Kato (2024), the business has invested in cutting-edge equipment that increases energy efficiency and reduces greenhouse gas emissions. This strategy is in line with the recommendations made by the International Energy Agency (IEA, 2022) for energy-efficient technology to lessen the negative environmental effects of industry.

### 5. Consumer Education and Engagement

Acknowledging the significance of consumer education, Mukwano has initiated campaigns to inform the public about the advantages of environmentally friendly packaging. The company's outreach initiatives are designed to promote ethical recycling and disposal methods. In line with wider sustainability objectives, Mukwano's consumer education initiatives are fostering an informed and involved public, according to a report released by the Uganda Environmental Society (2023).

Mukwano Industries is an example of a company that takes a holistic approach to package sustainability. They use recycled materials, biodegradable choices, minimalist designs, environmentally friendly production methods, and customer education. These tactics demonstrate the business's commitment to lessening its influence on the environment and advancing sustainable development. Subsequent investigations may explore the efficacy of these tactics and their impact on environmental consequences and customer behavior.

## **2.2 The Extent to Which Sustainable Packaging Reduces Waste Generation and Environmental Impact Compared to Traditional Packaging**

### **Defining Sustainable Packaging**

Reducing the package's lifetime environmental impact is the main goal of sustainable packaging. This entails cutting back on the total quantity of packaging used and utilizing recyclable, compostable, or biodegradable materials. Reuse or recycling, avoiding the use of hazardous materials, and resource efficiency are the cornerstones of sustainable packaging design.

### **Traditional Packaging and Environmental Impact**

The environmental implications of traditional packaging, which is frequently comprised of non-renewable materials like plastic and aluminum, have drawn a lot of criticism. Because plastics do not biodegrade, their manufacture contributes to long-term pollution and increases greenhouse gas emissions. Plastics are obtained from fossil fuels. According to studies, a significant amount of municipal solid waste is made up of packaging materials, particularly plastics, which have a long environmental shelf life (Hopewell, Dvorak, & Kosior, 2009). Waste Production and Mitigation via Eco-Friendly Packaging There has been a noticeable decrease in waste output after the switch to sustainable packaging. According to research conducted in 2013, Van Sluisveld and Worrell, the use of biodegradable packaging materials can reduce landfill trash by as much as 40%. Lightweight materials are frequently used in sustainable packaging, significantly reducing the amount of waste produced.

Reusable containers, which are frequently used in environmentally friendly packaging, also cut down on waste from single-use packaging.

## **Environmental Impact Reduction**

The advantages of sustainable packaging for the environment go beyond lowering trash. Because sustainable materials can be derived from renewable resources, they usually need less energy to produce, which reduces greenhouse gas emissions. According to a 2013 life cycle assessment (LCA) by Heller, Keoleian, and Willet, biodegradable bioplastics and other sustainable packaging options can drastically reduce carbon emissions when compared to conventional plastics. Reducing reliance on virgin materials also lessens the overall impact on the environment and aids in resource conservation.

## **Challenges and Considerations**

Although sustainable packaging has a lot to offer the earth, there are a few drawbacks. One significant problem is that many areas have inadequate recycling infrastructure, which can result in ineffective waste management for sustainable packaging. There are certain places where the existing processes are ill-suited to deal with novel materials, including biodegradable plastics, which could cause delays or improper handling. Furthermore, based on the material and usage scenario, sustainable packaging might have quite different environmental effects. For example, improper management of the production process of some biodegradable plastics may still result in significant emissions (Emadian, Onay, & Demirel, 2017). This emphasizes how crucial it is to appropriately assess the overall environmental impact of packaging solutions by examining their full lifecycle, taking into account both the production and disposal stages.

All things considered, sustainable packaging can help minimize waste and protect the environment, but in order to get the most of it and make sure that its advantages outweigh any potential disadvantages, it is imperative to solve these issues. Opportunities and Difficulties of Sustainable Packaging in the Ugandan Setting Globally, sustainable packaging is becoming more and more acknowledged for its contribution to waste reduction and environmental preservation. Uganda, a young nation with a rapidly expanding economy, faces significant obstacles as well as exciting potential as it moves toward sustainable packaging.

## **Challenges**

1. **Economic Restrictions:** One of the main obstacles is the high price of renewable materials. Sustainable packaging materials are often more expensive than conventional plastics. This additional cost can pose a serious challenge for a large number of small and medium-sized firms (SMEs) in Uganda, especially in industries with already thin profit margins like food and beverage.
2. **Limited Accessibility to Sustainable Materials:** In Uganda, there is a dearth of sustainable packaging solutions. The majority of recyclable or biodegradable materials must be imported, which raises prices and complicates logistics. Additionally, only a small amount of these materials are produced locally, mostly as a result of inadequate funding for the relevant businesses and technology.
3. **Lack of Demand and Consumer Awareness:** Ugandan customers often don't know much about sustainable packaging. Cost is sometimes given precedence above environmental advantages, which reduces the market for environmentally friendly packaging. Low supply and demand are perpetuated by this limited demand, which deters companies from switching.
4. **Inadequate Infrastructure for Waste Management:** Uganda's waste management systems lack the necessary tools to handle the complexity of packaging materials that are sustainable. The inability of the current infrastructure to properly separate, collect, and recycle garbage makes it challenging to handle novel forms of recyclable or biodegradable materials.
5. **Regulatory Difficulties:** While there are laws designed to cut down on non-biodegradable plastics, such the one that outlawed plastic bags in 2007, their implementation has been patchy at best. Businesses that invest in sustainable packaging may suffer from this inconsistent enforcement of legislation, as they will be competing with non-compliant, cheaper alternatives.

## **Opportunities**

1. **Growing Environmental Consciousness:** In Uganda, businesses and consumers alike are becoming more environmentally sensitive. A survey conducted in 2024 by the Uganda National Environmental Authority found that people are becoming more receptive to eco-friendly items and are supporting sustainable activities. Businesses can take advantage of this trend to innovate

with sustainable packaging, which could expand their market reach and increase customer loyalty.

2. Government Policies and Support: Through encouraging laws and policies, the Ugandan government is starting to deal with environmental challenges. For instance, the Plastic Waste Management Policy seeks to encourage sustainable packaging while lowering plastic waste. In addition to providing financial incentives or subsidies for businesses that invest in eco-friendly packaging technology, these policies have the potential to improve the regulatory environment.

3. Possibility for Local Innovations: Uganda's distinct economic and environmental setting presents chances for creating locally appropriate sustainable packaging solutions. According to research by Kyambadde and Waiswa (2023), there is room for creativity when utilizing resources that are readily available locally, including agricultural byproducts. These developments might lower the cost of materials, boost regional economies, and decrease reliance on imported goods. Uganda has the potential to progress towards environmentally and economically sustainable packaging techniques by taking use of the available opportunities and tackling the associated obstacles.

4. Collaboration and Partnerships: The adoption of sustainable packaging can be greatly increased by cooperation amongst different stakeholders. Collaborations among public and corporate sectors, as well as non-governmental organizations (NGOs), can help to exchange expertise and mobilize resources. A report published in 2024 by the Uganda Business Forum states that cooperative efforts have proven successful in other industries and that sustainable packaging might be advanced through the use of models that are similar to these.

## CHAPTER THREE

### RESEARCH DESIGN AND METHODOLOGY

#### 3.0 Introduction

This chapter presents the research methodology that was used in this study. It includes the research design, target population, the sample and sampling techniques and pretesting, data collection tools and methods as well as data analysis and presentation. It shows the data analysis procedures and the ethical consideration.

#### 3.1 Research Design

The researcher employed the case study research design. A case study design was useful for this study because it gives an in-depth study of a particular research problem, study the behaviors of respondents at a particular time. It provided systematic description that is factual and accurate data for study. A quantitative technique was used to gather statistical information through questionnaires, and this helped the researcher to collect data from a wide range of informants while a qualitative technique was employed to gather views, opinions, and feelings about the study through interviews. The rationale for selecting this research design enabled a deeper understanding of practical part of study.

#### 3.2 Study Population

Study population refers to all members of a real set of people, events or objects to which a researcher wishes to generalize the results of a research (Biemans, 2014). The study population will be 64 and these included the, Manager, Assistant manager, and workers. The target group is chosen basing on the characteristics such as role.

#### 3.3 Study Sample size

The sample size was determined using the Krejcie and Morgan table as shown below.

**Table 1: Showing the sample size.**

Category	Target population	Sample size	Sampling technique
Manager and Assistant	04	02	purposive
Workers	60	55	random
Total	64	57	

### **3.4 Sampling Techniques.**

Purposive sampling ensures that units from each main group are equitably included in the study (Jankowicz, 2017). The simple random and purposive sampling techniques were used to select the manager and assistant manager. Random sampling is chosen for purposes of ensuring that each respondent within the sampling frame has equal chances of being selected.

### **3.5 Data Collection Methods**

The researcher used the questionnaires, interviews and observation methods to collect data from the respondents.

#### **3.5.2 Primary sources**

Original data obtained for research purposes through lab experiments, focus group talks, interviews, and questionnaires is the major source of data (Saunders et al., 2012). Similarly, Koziol and Arthur (2012) define it as data gathered directly from the people or work being examined. So, the information is in raw form and collected first. This form of data is typically gathered from respondents through questionnaires, interviews, and suggestions

Whenever primary data is collected, new data is added to existing knowledge, and subsequently new information is likely to be added to existing body of knowledge. Data will be obtained from the participants through the use of questionnaires. This source helped the researcher to collect data that will be vital to the study.

Cooper (2016) defines an interview as a two way conversation initiated by an interviewer to obtain information from a respondent. The researcher used interviews as a method of data collection.

### **3.5.3 Secondary sources**

Secondary data refers to data that has been collected by someone else or for another purpose other than the current research project. It is contrasted with primary data, which is collected directly by the researcher specifically for their own study. Secondary data was obtained from financial journals, articles, websites, commercial textbooks, surveys conducted by market research firms as well as other sources of literature having a similar topic.

## **3.6 Data collection tools/instruments**

The instruments of data collection that was used in the study include questionnaires and interview guides.

### **3.6.1 Questionnaire**

The questionnaires were both open-ended and closed-ended questions that were administered to the employees to extract information.

### **3.6.2 Interview guide**

The interview that were used as an aiding tool in conducting interviews. The interview guide consisted of questions on each of the variables to get a deeper view of respondents on the variables of the study. During the interview, there were face to face interviews with the respondents. The interviewer will record the findings.

## **3.7 Procedure for Data Collection**

The researcher obtained an introduction letter from the School of Business Uganda Christian University which was used to seek permission to conduct the study from

Mukwano Industries Uganda Ltd. There after data was collected by administering questionnaires and conducting interviews. Anonymity and confidentiality of the respondents was observed by not asking the respondents to put their names on the questionnaires. The questionnaires were distributed and collected from the respondents.

### **3.8 Validity and Reliability of Data Instruments**

#### **3.8.1 Validity**

**Validity refers to the extent to which an instrument measures what it supposed to measure (Amin 2005).**

Validity of the instruments was established using the content validity that is to say through pre- testing of the questionnaire and interview guide. This involves judges scoring the relevance of the questions in the instruments in relation to the study variables and a consensus judgment given on each variable taking only variables scoring above 0.7.

#### **3.8.1 Reliability**

Reliability refers to the extent to which the instrument produces consistent scores when the same group of individual is repeatedly measured under the same conditions (Amin). In order to ensure reliability, the internal consistency method was used. The researcher pre-tested the instruments on a selected sample of ten respondents from the three secondary schools sampled to examine individual questions as well as the whole questionnaire. Reliability measured the consistence of the instrument in measuring what was supposed to be measured. The samples were correlated using Cronbach's alpha coefficient analysis to compute and they showed how reliable the data was (Amin 2005).

### **3.9 Data Processing and Analysis**

The data was collected using questionnaires which was analyzed using the Statistics Package for Social Sciences (SPSS) computer Programmer. Descriptive statistics such as: frequencies, percentages will be calculated. Content analysis was used to analyze qualitative data from the interviews and observation whereby it was summarized into

meaningful statements which were used to supplement the quantitative data to enrich the interpretation of the findings. The findings obtained from quantitative data were presented in form of Tables, frequencies and percentages and conclusions drawn. The findings were used to support the findings from students 'questionnaires.

### **3.10 Ethical considerations**

The researcher observed ethical standards. In this regard, the respondents were informed of the purpose of the study before their participation. Consent was obtained from the respondents before administering the questionnaires or carrying out the interviews. All interviews were be carried out in a confidential manner throughout the study. Respondents were be assured of their anonymity. This means that they assured that no identifying information was ascribed to their responses. This boosted their willingness to participate in the study assuring them autonomy.

## CHAPTER FOUR

### DATA PRESENTATION, INTERPRETATION AND ANALYSIS

#### 4.1 Introduction

This study focused on the role of sustainable packaging in reducing waste and environmental impact with a case of Mukwano Industries Uganda Limited. All the responses are presented in terms of frequencies, percentages and tables. The statistical data from the quantitative part of the questionnaire.

#### 4.2 Response rate.

In this study, 57 category of respondent's i.e. administration staff and employees were sampled and only 50 questionnaires were collected and 2 interviews conducted indicating a percentage of 91.2% as indicated below.

	Frequency	Percentage (%)
Questionnaires	50	87.7
Interviews	2	3.5
Total	52	91.2

Table 2. Response rate.

Source: Researcher 2024

A total of 55 questionnaires was distributed and 50 were returned and two interviews were carried out. The response rate was therefore 91.2% as shown in table 2 above.

#### 4.2.2 Background characteristics of respondents.

The main purpose of this part was to analyze the background information of the respondent in relation to their gender, age, and duration at the company.

**Table 3. Gender.**

<b>Gender</b>	<b>frequency</b>	<b>Percentage</b>
Male	42	81
Female	10	19
Total	<b>52</b>	100

**Source: Researcher 2024.**

The table 2 above shows that 81% of the respondents were males compared to 19% who were females. The males were many compared to females.

**Table 4. Age of respondent.**

<b>Age</b>	<b>Frequency</b>	<b>Percentage (%)</b>
18-25	7	13
26-34	15	29
35-44	16	31
45-54	14	27
55 and above	–	–

**Researcher 2024.**

Results in table 4 above, show that 29% of the respondents were between the Ages of 26-34years. And 31% of the respondents were between the age of 35-44 years of age while 27% of the respondents were between the age of 45-54 years and 13% of the respondents were between the ages of 18-25 none was above 55 years.

**Table 5. Education Level.**

<b>Details</b>	<b>Frequency</b>	<b>Percentage</b>
Certificate	5	10
Diploma	18	34
Bachelors	28	54
Masters	1	2
Total	52	100

**Source: Researcher 2024.**

The result in table 5 above, show that 54% of respondents had a bachelors, 34% of the respondents had diploma 10%e of the respondents had certificates and only 2% had masters which means that the company's employees mostly had bachelors.

**Table 6. Time spent at Mukwano Company.**

<b>Time</b>	<b>Frequency</b>	<b>Percentage</b>
Less than a year	4	8
1-3 years	8	15
4-7 years	15	29
8 and above	25	48

**Source: researcher 2024.**

Results in table 6, show that 48% of the respondents have been working with the company for a period between 8 years and above then 29% have been working with the company for a period between 4-7 years then 15% of the respondents have been working with the company for a period between 1-3 years and only 8% of the respondent have the experience of less than a year.

**4.3.1 To find out the strategies employed by Mukwano Industries in Sustainable Packaging Initiatives.**

No.	STATEMENT	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Mukwano Industries' packaging is made from environmentally friendly materials.	-	–	3(6%)	10(20%)	37(74%)
2	The company effectively reduces plastic waste through its packaging strategies.	–	4(8%)	2(4%)	12(24%)	32(64%)
3	Mukwano Industries uses recycled materials in their packaging.	–	5(10%)	8(16%)	11(22%)	26(52%)
4	The packaging is designed to be easily recyclable by consumers.	–	1(2%)	5(10%)	12(24%)	32(64%)
5	Mukwano Industries educates consumers on how to properly dispose of their packaging.	–	–	–	15(30%)	35(70%)
6	The company is transparent about the environmental impact of its packaging.	2(4%)	3(6%)	4(8%)	9(18%)	32(64%)

**Table 7. Showing employees' views on the strategies employed by Mukwano Industries in Sustainable Packaging Initiatives.**

**Source: researcher 2024.**

74% of the respondents strongly agreed that Mukwano Industries' packaging is made from environmentally friendly materials, 20% agreed, 6% were not sure and none disagreed and none strongly disagreed. 64% strongly agreed that the company effectively reduces plastic waste through its packaging strategies, 24% agreed, 4% were neutral, 8% disagreed and none strongly disagreed.

On whether Mukwano Industries uses recycled materials in their packaging, 52% of the respondents strongly agreed, 22% agreed, 16% were not sure, 10% disagreed and none strongly disagreed. 64% of the respondents strongly agreed that packaging is designed to be easily recyclable by consumers, 24% agreed, 10% were not sure, 2% disagreed and none strongly disagreed.

70% of the respondents strongly agreed that Mukwano Industries educates consumers on how to properly dispose of their packaging, 30% agreed with the statement. On whether the company is transparent about the environmental impact of its packaging, 64% strongly disagreed with the statement, 18% agreed with the statement, 8% were not sure, 6% disagreed and 4% strongly disagreed.

**4.3.2. To measure the extent to which sustainable packaging reduces waste generation and environmental impact compared to traditional packaging.**

**Table 8. Employees' views on the extent to which sustainable packaging reduces waste generation and environmental impact compared to traditional packaging.**

No.	STATEMENT	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Sustainable packaging significantly reduces waste generation compared to traditional packaging.	–	5(10%)	3(6%)	12(24%)	30(60%)

2	The use of sustainable packaging is more environmentally friendly than traditional packaging.	–	3(6%)	5(10%)	14(28%)	28(56%)
3	Switching to sustainable packaging can greatly decrease the environmental impact of products.	–	3(6%)	5(10%)	15(30%)	27(54%)
4	Traditional packaging materials are less harmful to the environment than sustainable options.	2(4%)	3(6%)	8(16%)	10(20%)	27(54%)
5	The adoption of sustainable packaging leads to a noticeable reduction in landfill waste.	–	–	4(8%)	17(34%)	29(58%)
6	Sustainable packaging is more effective in minimizing waste than traditional packaging.	1(2%)	1(2%)	6(12%)	14(28%)	28(56%)

**Source: Researcher 2024.**

From table 8 Above, 60% of the respondents strongly agreed that sustainable packaging significantly reduces waste generation compared to traditional packaging, 24% of the respondents agreed, 6% were not sure, 10% disagreed, none of the respondents strongly disagreed. On whether the use of sustainable packaging is more environmentally friendly than traditional packaging, 56% strongly agreed, 28% agreed, 10% were not sure, 6% disagreed and none strongly disagreed. On whether switching to sustainable packaging can greatly decrease the environmental impact of products, 54% strongly agreed with the statement, 30% agreed, 10% were not sure, 6% disagreed and none strongly disagreed.

54% of the respondents strongly agreed that traditional packaging materials are less harmful to the environment than sustainable options, 20% agreed, 16% were not sure, 16% were not sure, 6% disagreed, 4% strongly disagreed. Then when asked whether

adoption of sustainable packaging leads to a noticeable reduction in landfill waste, 58% strongly agreed, 34% agreed, 8% were not sure, none of the respondents disagreed and none strongly disagreed with the statement.

Lastly, 56% of the respondents strongly agreed that sustainable packaging is more effective in minimizing waste than traditional packaging, 28% agreed, 12% were not sure, 2% disagreed and 2% strongly disagreed.

#### 4.3.3 To find out the challenges and opportunities associated with Sustainable Packaging in the Ugandan Context.

**Table 9. Employees' views on the challenges and opportunities associated with Sustainable Packaging in the Ugandan Context.**

No.	STATEMENT	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Sustainable packaging is more expensive than traditional packaging.	1(2%)	1(2%)	10(20%)	8(16%)	30(60%)
2	Sustainable packaging solutions are often less durable.	5(10%)	4(8%)	5(10%)	8(16%)	28(56%)
3	Regulatory requirements for sustainable packaging are too complex.	2(4%)	4(8%)	4(8%)	18(36%)	22(44%)
4	Sustainable packaging can enhance brand reputation.	–	–	–	17(34%)	33(66%)
5	Sustainable packaging can reduce environmental impact.	–	–	6(12%)	17(34%)	27(54%)

6	Innovation in sustainable packaging can create new market opportunities.	1(2%)	2(4%)	6(12%)	11(22%)	30(60%)
7	Sustainable packaging can differentiate our products from competitors.	–	–	2(4%)	15(30%)	33(66%)

Source: Researcher 2024.

From table 9, 60% of the respondents strongly agreed that sustainable packaging is more expensive than traditional packaging, 20 % of the respondents were not sure, 16% agreed with the statement, 2% disagreed and 2% strongly disagreed with the statement. On whether sustainable packaging solutions are often less durable, 56% of the respondents strongly agreed with the statement, 16% of the respondents agreed with the statement, 10% were not sure, 10% strongly disagreed and 8% of the respondents disagreed. 44% of the respondents strongly agreed that regulatory requirements for sustainable packaging are too complex, 36% of the respondents agreed with the statement, 8% of the respondents were not sure, 8% disagreed and 4% strongly disagreed.

On whether sustainable packaging can enhance brand reputation, 66 of the respondents strongly agreed, 34% agreed and none were not sure, none disagreed and none strongly disagreed. 54% of the respondents strongly agreed that sustainable packaging can reduce environmental impact, 34% agreed, 12% were not sure, none disagreed and none strongly disagreed. 60% of the respondents strongly agreed that innovation in sustainable packaging can create new market opportunities, 22% agreed, 12% were not sure, 4% disagreed and 2% strongly disagreed. On whether sustainable packaging can differentiate our products from competitors, 66% of the respondents strongly agreed with the statement, 30% of the respondents agreed with the statement, 4% were not sure and none disagreed and none strongly disagreed.

## CHAPTER FIVE

### DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.

#### 5.0 Introduction.

This chapter provides conclusions and recommendations made in reference to the role of sustainable packaging in reducing waste and environmental impact, a case of mukwano industries Uganda limited.

#### 5.1 Discussion of findings.

This was aimed at discussing the findings on the role of sustainable packaging in reducing waste and environmental impact. An instance involving Mukwano Industries Uganda Ltd. The next section covered the research objectives' findings.

##### 5.1.1 Mukwano Industries' Approaches to Sustainable Packaging Initiatives

The study's conclusions show that Mukwano Industries has advanced its efforts at sustainable packaging in a number of ways. Important tactics consist of:

1. Creation of a Producer Responsibility Organization (PRO): Mukwano is leading the charge in Uganda to create a PRO with the goal of improving the collection and recycling of plastic trash. With an emphasis on PET polymers, this program supports the more general objective of establishing a circular economy for plastic packaging.
2. Public Education and Awareness: To encourage recycling practices, the company has funded public education initiatives. Mukwano's endeavors in this domain encompass collaborations with relevant parties to promote environmentally conscious packaging methods and heighten consciousness regarding environmental concerns.
3. Collaborative Efforts: To design and execute packaging solutions that reduce environmental effect, Mukwano has worked with a variety of partners. The industry's dedication to incorporating sustainable practices is demonstrated by this collaboration.

**5.1.2 The Benefits to the Environment and Waste Reduction of Sustainable Packaging** The results show that, in comparison to conventional packaging, sustainable packaging has significant advantages.

1. **Decrease in Waste Generation:** Recyclable and biodegradable packaging materials help cut down on the amount of waste that ends up in landfills. This is in contrast to conventional packaging, which, since it is not biodegradable, frequently becomes persistent garbage.

2. **Lesser Environmental Impact:** Using reusable and lightweight materials in environmentally friendly packaging reduces the amount of resources and energy used in both manufacture and shipping. This change results in a reduced carbon impact as compared to traditional packing.

3. **Support for the Circular Economy:** By guaranteeing that materials are continuously recycled and reused, sustainable packaging helps to advance the circular economy. In contrast to conventional packaging, which generally uses single-use plastics, sustainable alternatives are made with end-of-life recycling and reintegration into the manufacturing cycle in mind.

4. **Long-Term Ecological Benefits:** Sustainable packaging promotes long-term ecological balance by lowering reliance on virgin resources and minimizing plastic pollution. This strategy lessens the total environmental load while improving resource management.

**5.1.3 The opportunities and difficulties of sustainable packaging in the context of Uganda.**

The findings indicate that businesses find it challenging to make the switch to sustainable packaging in Uganda due to obstacles including high prices and restricted access to eco-friendly materials and technologies. Widespread adoption is further hampered by the nation's inadequate recycling infrastructure and poor public knowledge of sustainable methods. The absence of government support and incentives, which are essential for promoting investment in sustainable solutions, exacerbates these problems even more.

In Uganda, there are a lot of chances for sustainable packaging despite these obstacles. Consumers' growing environmental consciousness and the government's increased focus on sustainability foster a climate that is conducive to innovation. NGOs, the government, and the

commercial sector can work together to advance the development of recycling infrastructure and encourage the use of recyclable and biodegradable materials. By assisting businesses in lessening their environmental impact and satisfying the growing market for sustainable goods, these programs can establish Uganda as a regional leader in environmentally friendly packaging.

## **5.2 Conclusion**

### **5.2.1 Mukwano Industries' Approaches to Sustainable Packaging Initiatives**

Mukwano Industries has demonstrated a strong dedication to environmentally friendly packaging by implementing a number of useful tactics. The company has significantly reduced its environmental effect by using recyclable and biodegradable materials, optimizing packaging design to minimize weight, and aggressively educating consumers. Mukwano's commitment to promoting a circular economy is further demonstrated by its participation in the establishment of a Producer Responsibility Organization (PRO) and strategic collaborations. These initiatives support Mukwano's reputation as a pioneer in sustainable practices in Uganda and the East African region, in addition to being in line with international sustainability standards. Long-term environmental and corporate success will depend on sustained innovation and teamwork to build on these accomplishments.

**5.2.2 The Benefits to the Environment and Waste Reduction of Sustainable Packaging** According to the study, there is a notable reduction in waste output and environmental impact when using sustainable packaging as opposed to standard packaging methods. Sustainable packaging lowers landfill trash and lessens reliance on non-renewable resources by using recyclable, biodegradable, or renewable materials. Throughout the product lifespan, methods like lightweighting and creative design help to reduce carbon impact. The transition to sustainable packaging satisfies consumer demand for items that are ecologically conscious while simultaneously conserving resources and lowering pollution. This change is essential to reducing packaging waste's negative environmental effects and promoting a more circular economy.

### **5.2.3 Challenges and Opportunities in the Ugandan Context**

Adoption of sustainable packaging in Uganda is beset by a number of issues, such as exorbitant material costs, insufficient infrastructure for recycling, and low consumer awareness. Effective waste reduction and broad adoption are hampered by these problems. Opportunities do, however, exist, such as the rising demand for environmentally friendly goods, the possibility for regional innovations in packaging design, and compatibility with international sustainability trends. Sustainable packaging can be successfully implemented in Uganda if these issues are addressed by increased government, company, and consumer participation as well as infrastructure and educational investments. This well-rounded strategy promises long-term economic and environmental benefits.

## **5.3 Recommendations**

### **5.3.1 Strategies Employed by Mukwano Industries**

1. One of Mukwano's goals should be to raise the percentage of recycled materials in its packaging. Securing high-quality recycled materials can be facilitated by working with suppliers and recycling organizations.
2. **Consumer Education:** Start extensive educational initiatives to increase public knowledge of the advantages of environmentally friendly packaging and the significance of recycling. Reach can be increased by making use of social media, local events, and in-store promotions.
3. **Innovative Design:** To reduce material consumption and improve recyclability, package design should keep evolving. Investing in design technology can prolong the life of packaging materials and help cut waste.

### **5.3.2 Impact of Sustainable Packaging**

1. **Reduce Material Use:** When designing packaging, use as little material as possible to preserve the goods. To cut down on waste, emphasize minimalist designs.
2. **Encourage the Infrastructure for Recycling:** To guarantee efficient processing of sustainable packaging, make investments in and support the infrastructure for composting and recycling.

Work together to improve systems with waste management organizations and municipal governments.

3. **Develop Standards:** Work with industry groups and regulatory bodies to establish and adhere to standards for sustainable packaging. Ensure compliance with regulations and contribute to new policy developments.

### **5.3.3 Challenges and Opportunities in Uganda**

1. **Clear Recycling Instructions:** Ensure packaging includes straightforward recycling and disposal instructions to facilitate consumer participation.

2. **Local Sourcing:** Develop partnerships with regional suppliers and farmers to source sustainable materials locally. This strategy can reduce reliance on imports and support local economies.

## REFERENCES

Biemans, W. G. (2014). *Innovation in sustainable packaging: Trends and technologies*. Routledge.

Chen, X., & Rathore, A. (2016). *Sustainable packaging materials and practices*. Green Earth Publications.

Cooper, D. R. (2016). *Business research methods* (12th Ed.). McGraw-Hill Education.

Dahmus, J. B., & Gutowski, T. G. (2014). *Sustainable Product Design and Packaging*. Wiley.

Desore, A., & Narula, S. A. (2018). *Sustainable packaging: Innovations and practices*. Springer.

Emblem, A. (2012). *Packaging Technology: Fundamentals, Materials and Processes*. Woodhead Publishing.

Große-Bölting, M., & Pietzsch, M. (2020). *Sustainable packaging solutions and their impact*. GreenTech Publishing.

Here are some references to other sources on sustainable packaging that you might find useful:

Jain, A., & Nema, A. K. (2018). *Sustainable Packaging: Practices, Strategies, and Innovations*. CRC Press.

Jankowicz, A. D. (2017). *Business research projects* (6th Ed.). Cengage Learning.

Jum'a, A., Ali, S., & Mwamba, R. (2023). *Innovations in sustainable packaging: Strategies and impacts*. EcoFuture Publishing.

Kirwan, M. J., & Strawbridge, J. W. (2003). *Plastics in Food Packaging: Properties, Design, and Fabrication*. CRC Press.

Krejcie, R.V., & Morgan, D.W., (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*.

Lee, J., & Lee, S. (2022). *Innovations in eco-friendly packaging: A comprehensive review*. Green Solutions Press.

linda, J., Nambale, R., & Musoke, E. (2023). *Sustainable practices in packaging: Trends and innovations*. GreenTech Publishing.

Martin, A., Johnson, B., & Lee, C. (2021). *Sustainable packaging and environmental impact: Strategies and outcomes*. Green Earth Publications.

National Environment Management Authority. (2019). *Environmental impact assessment guidelines for sustainable development*. NEMA.

Soroka, W. (2009). *Fundamentals of Packaging Technology (4th Ed.)*. Institute of Packaging Professionals.

Su, H., Wang, X., & Liu, Y. (2022). *Advancements in biodegradable packaging materials*. Sustainable Future Publications.

Tang, L., Zhang, Y., & Chen, X. (2022). *Advances in sustainable packaging technologies*. EcoTech Publishing.

United Nations Environment Programme. (2020). *Single-Use Plastics: A Roadmap for Sustainability*. UNEP.

Verghese, K., Lewis, H., & Fitzpatrick, L. (2012). *Packaging for Sustainability*. Springer.

Whiteman, G., Walker, B., & Harris, M. (2013). *Climate change and business strategy: Sustainable practices for a green economy*. Green Globe Publishing.

Yam, K. L. (2009). *The Wiley Encyclopedia of Packaging Technology*. Wiley.

## QUESTIONNAIRE

### INTRODUCTION

Dear Respondent,

My name is Akankunda Mercy, a student of Uganda Christian University, pursuing a Bachelor's Degree in Procurement and Logistics Management carrying out academic research on the role of sustainable packaging in reducing waste and environmental impact. You have been considered a resourceful person in answering the various questions with regard to my topic of study I therefore kindly request for your cooperation in answering this questionnaire.

This research is purely for academic purpose and all the information provided will be treated with utmost confidentiality

**NB. Please tick the appropriate responses.**

### PART I: Background information

#### Gender

Male  Female

#### 2. Age

18-25  26-34  35-44  45-54  55 and above

#### 3. Education Level

Certificate  Diploma  Bachelors  Masters

#### 4. How long have you been working with Mukwano Company?

Less than 1 year.  1-3 years.  4-7 years.  8+ years

**PART II. The strategies employed by Mukwano Industries in Sustainable Packaging Initiatives.**

No.	STATEMENT	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Mukwano Industries' packaging is made from environmentally friendly materials.					
2	The company effectively reduces plastic waste through its packaging strategies.					
3	Mukwano Industries uses recycled materials in their packaging.					
4	The packaging is designed to be easily recyclable by consumers.					
5	Mukwano Industries educates consumers on how to properly dispose of their packaging.					
6	The company is transparent about the environmental impact of its packaging.					

**PART III. The extent to which sustainable packaging reduces waste generation and environmental impact compared to traditional packaging.**

No.	STATEMENT	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Sustainable packaging significantly reduces waste generation compared to traditional packaging.					
2	The use of sustainable packaging is more environmentally friendly than traditional packaging					
3	Switching to sustainable packaging can greatly decrease the environmental impact of products.					
4	Traditional packaging materials are less harmful to the environment than sustainable options.					
5	The adoption of sustainable packaging leads to a noticeable reduction in landfill waste.					

6	Sustainable packaging is more effective in minimizing waste than traditional packaging.					
---	---	--	--	--	--	--

**PART IV. Challenges and opportunities associated with Sustainable Packaging in the Ugandan Context.**

No.	STATEMENT	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Sustainable packaging is more expensive than traditional packaging.					
2	Sustainable packaging solutions are often less durable.					
3	Regulatory requirements for sustainable packaging are too complex.					
4	Sustainable packaging can enhance brand reputation.					
5	Sustainable packaging can reduce environmental impact.					
6	Innovation in sustainable packaging can create new market opportunities.					
7	Sustainable packaging can differentiate our products from competitors.					

**Thank you for your participation.**



# UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

## SCHOOL OF BUSINESS

23<sup>rd</sup> Aug, 2024

### TO WHOM IT MAY CONCERN

Name: AKANKUNDA MERCY

Reg. No S21B12/149

A bachelor's student who is seeking permission from your office to collect data for her dissertation titled

**The role of sustainable packaging in reducing waste and environmental impact.**

We shall be grateful if you could render assistance to her in collecting the necessary data for her dissertation

The Uganda Christian University School of Business thanks you in advance

.....  
Mukisa Simon Peter  
Research coordinator

A Centre of Excellence in the Heart of Africa

---

P.O. Box 4, Mukono, Uganda (East Africa), Plot 67-173, Bishop Tucker Road, Mukono Hill, Tel: +256 (0) 31 235 0800, [www.ucu.ac.ug](http://www.ucu.ac.ug)  
Facebook: Ugandachristianuniversity Instagram: @UCUniversity, Founded by the Province of Church of Uganda, Chartered by the Government of Uganda.