

UNIVERSITY OF GHANA, LEGON



COLLEGE OF BASIC AND APPLIED SCIENCES

DEPARTMENT OF FAMILY AND CONSUMER SCIENCES

**WASTE MANAGEMENT PRACTICES OF SECOND-HAND CLOTHING
DEALERS IN THE ACCRA METROPOLIS: ITS IMPLICATIONS FOR
ENVIRONMENTAL SUSTAINABILITY**

PAUL APERKOH



UNIVERSITY OF GHANA, LEGON



COLLEGE OF BASIC AND APPLIED SCIENCES

DEPARTMENT OF FAMILY AND CONSUMER SCIENCES

**WASTE MANAGEMENT PRACTICES OF SECOND-HAND CLOTHING
DEALERS IN THE ACCRA METROPOLIS: ITS IMPLICATIONS FOR
ENVIRONMENTAL SUSTAINABILITY**

PAUL APERKOH

**THESIS SUBMITTED TO THE COLLEGE OF BASIC AND APPLIED
SCIENCES, UNIVERSITY OF GHANA, LEGON IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF
THE MASTER OF PHILOSOPHY DEGREE IN HOME ECONOMICS.**

AUGUST, 2023

DECLARATION

I, the author of this research at this moment declare that except for the references that have been duly cited, the work in this thesis, “waste management practices of second-hand clothing dealers in the Accra metropolis, its implications for environmental sustainability” was done entirely by the researcher in the Department of Family and Consumer Sciences, College of Basic and Applied Sciences, University of Ghana, Legon. This work has never been presented in whole or part for any other degree in this University or elsewhere.



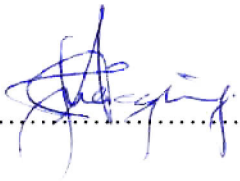
PAUL APERKOH

(STUDENT)

Principal Supervisor's Signature: 

Date: 11-12-2023

Name: Dr Nana Yaa Nyarko

Co-supervisor's Signature: 

Date: 11-12-2023

Name: Dr. Efua Vandyck

DEDICATION

I dedicate this work to my loving and supportive wife Mrs. Serrrian Anowah Akoto and adorable daughter Diamond Korlekyi.



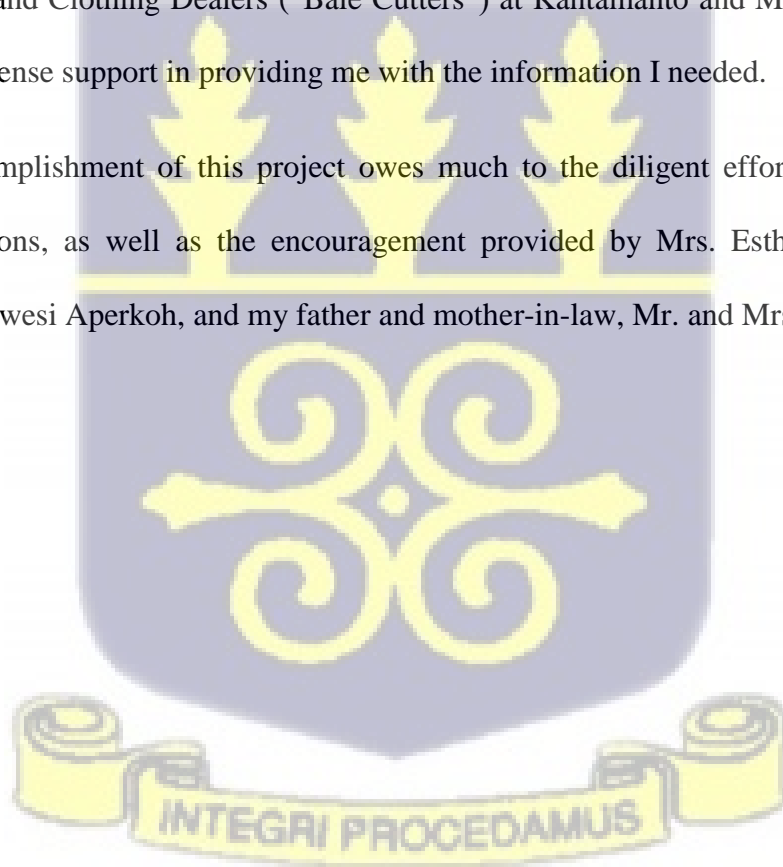
ACKNOWLEDGEMENTS

I extend my deepest gratitude to the Almighty God for bestowing upon me the grace and ability to complete this thesis work.

I express my heartfelt gratitude to my supervisors, Dr. Efua Vandyck, Dr. Nana Yaa Nyarko, Dr. Mercy Kuma-Kpobee, Dr. Patsy Perry, and Ms. Dora Appiadu. Their unwavering guidance, support, tolerance, direction, and consistent feedback were invaluable in assisting me in structuring my ideas. Their constructive comments significantly contributed to the accomplishment of this project.

My acknowledgment would be incomplete without recognising the contributions of the Second-hand Clothing Dealers (“Bale Cutters”) at Kantamanto and Madina Market for their immense support in providing me with the information I needed.

The accomplishment of this project owes much to the diligent efforts and insightful contributions, as well as the encouragement provided by Mrs. Esther Amanor, Mr. Samuel Kwesi Aperkoh, and my father and mother-in-law, Mr. and Mrs. Akoto.



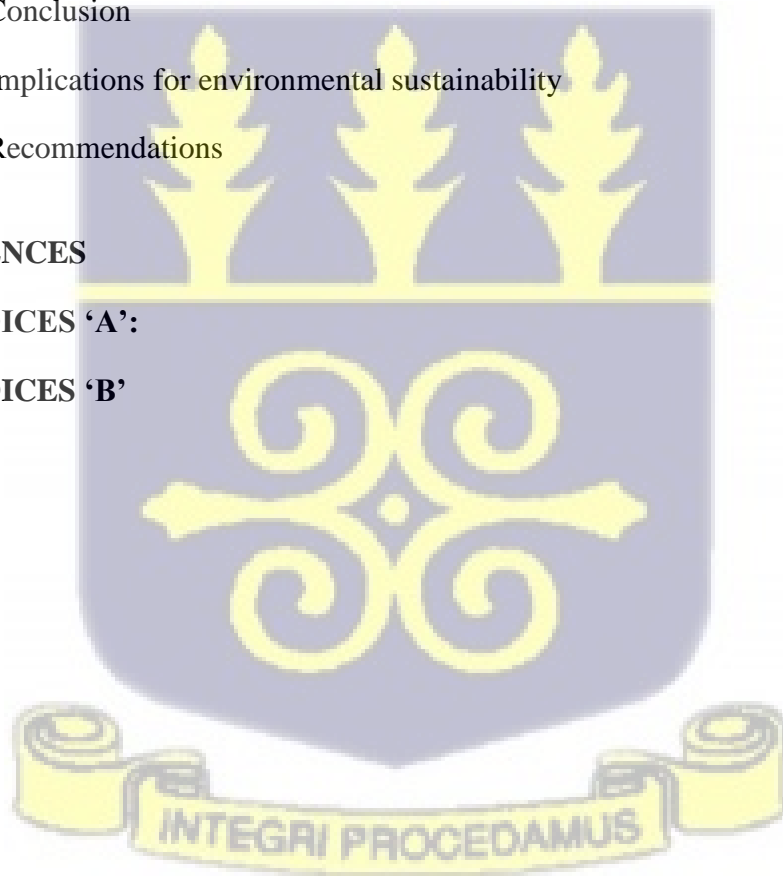
TABLES OF CONTENTS

Content	Page
DECLARATION	iii
DEDICATION	iv
ACKNOWLEDGEMENTS	v
TABLES OF CONTENTS	vi
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF ACRONYMS	xii
ABSTRACT	xiii
CHAPTER ONE: INTRODUCTION	14
1.1 Background of the study	14
1.2 Problem statement	18
1.3 Aim of the study	19
1.4 Objectives of the study	19
1.5 Research question	19
1.6 Significance of the study	20
1.7 Organisation of chapters	20
1.8 Operational definition of terms	20
CHAPTER TWO: LITERATURE REVIEW	23
2.1 Introduction	23
2.2 Theoretical framework	23
2.2.1 <i>Circular economy concept</i>	24
2.2.2 <i>Waste hierarchy concept</i>	26
2.2.3 <i>Sustainable consumption and production</i>	27
2.2.4 <i>Implications for environmental sustainability</i>	28
2.3 History and context of second-hand clothing trade.	29

2.3.1	<i>Developing countries</i>	29
2.3.2	<i>Ghana</i>	30
2.4	The role of second-hand clothing	31
2.4.1	<i>Economic impacts</i>	31
2.4.2	<i>Environmental impacts</i>	31
2.4.3	<i>Social impacts</i>	32
2.5	Textile waste management	33
2.5.1	<i>Methods/Types of textile waste management</i>	33
2.5.2	<i>Laws on textile waste management</i>	34
2.5.2.1	<i>Global laws on textile waste management</i>	34
2.5.2.2	<i>Laws on textile waste management in Ghana</i>	35
2.6	Environmental impacts of second-hand clothing waste management	36
2.7	Second-hand clothing waste management practices in Ghana	37
2.8	Factors influencing second-hand clothing waste management	38
2.9	Implications of second-hand clothing waste management	40
2.9.1	<i>Economic implications</i>	40
2.9.2	<i>Social implications</i>	40
2.10	Waste management and environmental sustainability	41
2.10.1	<i>Waste management as a pillar of sustainability.</i>	42
2.10.2	<i>Sustainable solutions for waste management in the second-...</i>	45
2.11	Government and non-governmental efforts in addressing second-hand ...	47
2.11.1	<i>Government efforts</i>	47
2.11.2	<i>Non-governmental efforts</i>	47
2.12	Sustainability in second-hand clothing waste management	48
2.12.1	<i>Environmental sustainability</i>	49
2.12.2	<i>Social sustainability</i>	50
2.12.3	<i>Economic sustainability</i>	50
2.13	Opportunities and challenges for sustainable second-hand clothing...	51
2.13.1	<i>Global</i>	51
2.13.2	<i>Ghana</i>	52
2.14	Challenges for sustainable second-hand clothing waste management	53

2.14.1	<i>Environmental challenges</i>	54
2.14.2	<i>Economic challenges</i>	54
2.14.3	<i>Social challenges</i>	55
2.15	Waste management practices in Ghana (Empirical review)	56
2.16	Conceptual framework	58
2.17	Summary of review	61
CHAPTER THREE: METHODOLOGY		63
3.0	Introduction	63
3.1	Study design	63
3.2	Study location	63
3.3	Target population	64
3.4	Inclusion and exclusion criteria	64
3.4.1	<i>Inclusion Criteria</i>	64
3.4.2	<i>Exclusion Criteria</i>	64
3.5	Sample and sampling procedure	64
3.5.1	<i>Sample size</i>	64
3.5.2	<i>Sampling procedure</i>	65
3.6	Data collection method	65
3.6.1	<i>Instrument for Data Collection</i>	65
3.6.2	<i>Pre-test</i>	65
3.6.3	<i>Ethical consideration</i>	66
3.6.4	<i>Procedure for data collection</i>	66
3.7	Data analysis	67
CHAPTER FOUR: RESULTS AND DISCUSSION		68
4.0	Introduction	68
4.1	Demographic characteristics of participants	68
4.2	Second-hand clothing waste management practices	72
4.3	Other forms of waste from imported bales	79
4.4	Awareness of waste management practices	81

4.5	Implications of clothing disposal practices	89
4.6	Reasons for choosing clothing disposal practices	92
4.7	Effects of waste management practices on SHC dealers	95
4.8	Challenges associated with waste management practices	97
4.9	Implication of waste management challenges on trading activities	100
4.10	Role of government/stakeholders as support	103
CHAPTER FIVE: SUMMARY, CONCLUSION, AND RECOMMENDATIONS		106
5.1	Introduction	106
5.2	Summary	106
5.3	Conclusion	109
5.4	Implications for environmental sustainability	110
5.5	Recommendations	111
REFERENCES		114
APPENDICES 'A':		128
APPENDICES 'B'		133



LIST OF TABLES

Table	Page
Table 4.1: Demographic Characteristics of Participants	69



LIST OF FIGURES

Figure	Page
Fig. 2.1: Second-Hand Clothing Waste management and Environmental...	59



LIST OF ACRONYMS

ACFRN African Clothing and Footwear Research Network

COVID-19: Corona Virus Disease

EPA Environmental Protection Agency

GTRP Ghana Textile Recycling Programme

JSS/JHS Junior Secondary School/ Junior High School

NGOs Non-governmental organisations

NWMA National Waste Management Authority

PBC Participating Bale-Cutter

RoHS Restriction of Hazardous Substances

SCP Sustainable Consumption and Production

SHC Second Hand-Clothing

SMEs Small and medium-sized enterprises

SSS/SHS Senior Secondary School/ Senior High School

UK United Kingdom

UNEP United Nations Environment Programme



ABSTRACT

This thesis investigated waste management practices of second-hand clothing dealers in the Accra metropolis and its implications for environmental sustainability. The objectives of the study were to determine the reasons for the choice of waste management practices used by second-clothing dealers, investigate the awareness of the implications of second-hand clothing dealers' waste management practices, find out the challenges associated with waste management practices used by second-clothing dealers, and examine the implications of challenges faced on trading activities in the Kantamanto market. The research employed a qualitative methodology, utilising a cross-sectional design and purposive sampling. A snowball sampling technique was used to select 27 second-hand clothing dealers. Data were collected through a semi-structured interview guide and analysed using thematic analysis. Findings were that second-hand clothing dealers in the Kantamanto market follow waste disposal rules set by market authorities. Bale-cutters prioritise cleanliness and were also pleading for government support in the reduction of high taxes on second-hand goods. Their plea for reduced taxes reflects the economic impact on their survival and families. Bale-cutters argued that the ban on second-hand clothing would harm the nation, particularly those in need. The study reveals a resourceful approach to waste, with bale-cutters repurposing materials like aluminium wires and plastics through recycling and upcycling. Participants clarify that the clothing waste along Accra's shores isn't caused by Kantamanto traders. Recommendations include targeted educational programs for sustainable waste management awareness, support for repair and upcycling practices through artisan development and collaboration, investment in waste management infrastructure, and addressing dealers' expectations through supportive policies and regulations.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The rapid globalisation of trade and economic growth has been accompanied by a significant upsurge in clothing production and consumption on a global scale. This surge has generated a substantial volume of textile waste, which has profound implications for environmental sustainability (Rabinowicz and Chinapah, 2014). This surge in clothing production has also led to a proliferation of clothing choices for consumers, including ready-to-wear, custom-made, and second-hand clothing. Notably, there has been a discernible shift in consumer preferences in many developing countries, including Ghana, from locally-produced garments to foreign clothing, including second-hand clothing.

Second-hand clothing has emerged as a compelling and accessible alternative for a multitude of individuals and families, owing to its affordability, wide availability, accessibility, and distinct style attributes (Mbabu, 2018). Consequently, vast quantities of surplus and used clothing, primarily sourced from industrialised and developed countries such as China, Canada, and the UK, are transported to Africa to be retailed at local marketplaces at reasonable prices. It has been observed that the distribution of used clothing through these marketplaces stimulates employment, bolsters rural economies, and contributes to the growth of the informal sector (Amankwah-Amoah, 2015; Guo et al., 2021). The prevalence of this trend is notably evident in several nations, where by 1980, second-hand clothing accounted for a significant portion, ranging from 30% to 50%, of all apparel sales in countries like Ghana, Benin, Togo, and Zaire (Langevang and Gough, 2012).

In Ghana, there exists a bustling marketplace where a multitude of buyers converge to purchase various products, including clothing, from ground-level markets (Abimbola, 2012). The epicentre of this vibrant trade is the Kantamanto market, which has thrived for over six decades and spans two acres in the heart of Accra (Agyemang-Duah, 2020). Commonly referred to as the "Bend Down Boutique," "Cants," or "Broni waawu" (meaning dead white people's apparel). This market was established to facilitate the transfer of shipping containers filled with bales of used clothing to central Accra. It is estimated that over 30,000 individuals, with more than 45% being women, participate in this commercial activity, generating substantial sustainable employment opportunities and an estimated \$25 to \$50 million weekly (Okoye, 2022).

The conventional linear model of fashion production and consumption dictates that the useful lifespan of clothing culminates in a waste management phase. This phase typically involves clothing ending up in landfills, being recycled for their textile content, or being shipped to underdeveloped nations. Remarkably, nearly 75% of collected textiles are routed abroad for reuse (Bartlett, McGill, and Willis, 2013). The management waste accumulated from second-hand clothing in Africa, though yielding economic opportunities, has simultaneously engendered challenges. While evidence suggests positive economic impacts in certain nations, in others, it has resulted in a diminishing local textile and apparel manufacturing sector and precarious economic structures (Brooks, 2012).

In response to these challenges, Ghana has initiated various policies aimed at regulating the management of waste including second-hand clothing. The waste generated from second-hand clothing in Ghana has been a contentious issue and has prompted numerous policies aimed at bolstering environmental sustainability. In 2019, the Ghanaian government issued a ban on the importation of second-hand clothing, citing concerns

regarding its detrimental impact on the local textile industry and potential health hazards (GBC News, 2019). This ban was also driven by the imperative to promote environmental sustainability and diminish the volume of textile waste arising from the waste management of second-hand clothing.

In addition to the ban on the importation of second-hand clothing, the government of Ghana has introduced various other policies designed to bolster environmental sustainability. For instance, the government established the National Waste Management Authority (NWMA) with the mandate of managing waste within the country. The NWMA is tasked with formulating and implementing policies and programs geared towards waste reduction, enhancement of waste management practices, and the promotion of environmental sustainability.

Furthermore, heavy taxes have been levied on imported clothing, increasing the cost of importing second-hand clothing and encouraging the purchase of locally produced garments (Smith, 2019). This initiative supports local clothing manufacturers, fosters job creation within the local population, and aims to reduce reliance on second-hand clothing.

Additionally, import permits for clothing dealers have been withheld as a measure to curb the influx of second-hand clothing into the country (Jones, 2020). This measure is aimed at controlling the adverse impact on the local textile industry and promoting environmental sustainability.

Despite these commendable efforts, the implications of waste generated from second-hand clothing especially on environmental sustainability within the Accra Metropolis remain an issue of paramount concern. Accra, as the capital city of Ghana and home to approximately 2.7 million people, grapples with an expanding population, rapid urbanisation, and inadequate waste management infrastructure. These challenges have

precipitated escalating levels of textile waste and other forms of environmental degradation (Sumo, 2022).

While the primary impetus behind clothing recycling has historically not been environmental conservation, research commissioned by the European Commission suggests that between 2% and 10% of environmental consequences can be attributed to apparel, however, figures are dated and likely to be higher, given the growth of the fashion industry during the meantime. (EIPRO, 2006). The environmental impact is not solely contingent upon clothing production but also hinges on the volume of clothing imports and the manner in which garments are discarded subsequent to sorting (Niinimäki and Hassi, 2011). Importers, including second-hand clothing dealers, wield significant influence over the clothing they import, the sorting of garments, and their waste management methods (Chen and Burns, 2006). This prompts a pertinent inquiry into whether dealers would continue to import second-hand clothing if they were cognizant of its environmental impact and were presented with viable alternatives.

Although several studies have explored the environmental ramifications of clothing, predominantly concerning energy consumption, they often neglect to consider the potential benefits of diverting worn garments from the waste stream (Allwood et al., 2006). As the textile and apparel industry burgeons, so too does the environmental toll it exacts. Given the gravity of this issue, there is an imperative need for further research to comprehensively grasp the waste management practices of second-hand clothing dealers in the Accra metropolis and its implications to environmental sustainability. This research endeavour seeks to contribute to the ongoing discourse and deliberations surrounding this issue by conducting a comprehensive investigation into the impact of waste management practices among second-hand clothing dealers on environmental sustainability in the Accra Metropolis.

1.2 Problem statement

The landscape of fashion consumption has undergone a profound transformation in recent decades, heralding the era of fast fashion, which plays a pivotal role in the broader narrative surrounding the waste management of second-hand clothing and its implications for environmental sustainability. Fast fashion represents a paradigm shift in the fashion industry, characterised by the rapid production and dissemination of inexpensive, trend-driven clothing. As a result, the global rise in fast fashion has set the stage for a complex and multifaceted issue of consumption, waste management practices, and environmental sustainability. The management of waste, particularly within urban centres like the Accra Metropolis, is linked to the dynamics of fast fashion. The impact of the fast fashion industry's swift cycle of production and consumption on the environment is evident in the substantial generation of textile waste and the difficulties it poses to sustainable waste management practices, particularly in the context of second-hand clothing. This research endeavours to delve into the intricate relationship between fast fashion, the proliferation of second-hand clothing, and their collective impact on waste management and environmental sustainability within the Accra Metropolis. By scrutinising the waste management practices of second-hand clothing dealers and their environmental consequences, this study aims to explore on a critical facet of contemporary fashion consumption that has far-reaching implications for both the environment and the society at large. In doing so, it seeks to contribute to the ongoing discourse surrounding sustainable fashion and waste management practices especially in the Accra Metropolis. Despite the numerous discussions and debates on the issue, there has been a lack of a comprehensive analysis of the subject matter. This study aims to address and fill this existing gap in the literature.

1.3 Aim of the study

This study aims to investigate the waste management practices of second-hand clothing dealers in the Accra metropolis and its implications for environmental sustainability.

1.4 Objectives of the study

The study **will make** use of these specific objectives;

1. Determine the reasons for the choice of clothing disposal practices used by second-clothing dealers in the Kantamanto market.
2. Investigate the awareness of the implications of second-hand clothing dealers (“bale cutters”) waste management practices in the Kantamanto market.
3. Find out the challenges associated with waste management practices used by second-clothing dealers in the Kantamanto market.
4. Identify the implications of challenges faced by second-clothing dealers on trading activities and environmental sustainability.

1.5 Research question

1. What are the choices and reasons behind the clothing disposal practices used by second-clothing dealers (“bale cutters”) in the Kantamanto market?
2. Are second-hand clothing dealers (“bale cutters”) in the Kantamanto market aware of the implications of second-hand clothing waste management practices used?
3. What are the challenges associated with waste management practices used by second-clothing dealers in the Kantamanto market?
4. What are the implications of challenges faced by second-clothing dealers on trading activities and environmental sustainability?

1.6 Significance of the study

1. This work may provide insights into waste management practices in Accra Metropolis, which will inform policies and practices aimed at reducing waste and improving environmental sustainability.
2. The study also contributes to the development of a circular economy in Accra Metropolis. By identifying opportunities for textile recycling and upcycling, this study can help reduce waste and promote a more sustainable and resource-efficient economy.
3. The study serves as literature for further studies to be carried out on the impact of second-hand clothing waste management on environmental sustainability.

1.7 Organisation of chapters

The research was organised into five (5) sections. Chapter 1 covered the study's background, problem statement, research objectives, research questions, and importance. Chapter 2 delved into the relevant literature and a theoretical framework for the research. Chapter 3 concentrated on the research methodology, including the research design, target population, sample selection, data sources, analysis, and ethical concerns. Chapter 4 presented and examined the research findings. Finally, Chapter 5 summarised the research findings from Chapter 4, provided conclusions, and offered recommendations.

1.8 Operational definition of terms

Accra Metropolis: The urban area of Accra, the capital city of Ghana, including its surrounding suburbs and neighbourhoods.

Awule: It is a term used by the traders at the Kantamanto market to describe waste.

Bale-Cutter: A term attributed to second-hand dealers who are the mainstream importers of second-hand clothing from which other local dealers also buy and sell.

Borla: garbage/waste.

Circular economy: An economic system that aims to minimise waste and maximise the use of resources by keeping materials in use for as long as possible and reducing the consumption of new resources.

Enyanka bɛhyɛ: Orphans will have something to wear.

Junkies: People with mental problems due to narcotic addiction.

Kaya-borla: Garbage collectors.

Landfill: The act of burying waste clothing in the ground.

Mending: This is the process of repairing/lighting damages on articles.

Patching: This is when a piece of fabric is used to cover part of an article/wear damage.

Recycling/Remodelling: Making a new article out of an existing one.

Reduction: Mechanisms put in place to control or prevent waste generation.

Reuse: Coming up with something new from the waste materials.

Second-hand clothing: Clothing that has been previously owned and is being sold, donated, or disposed of to be used by another person.

SHC: Second-hand clothing.

Sustainability: Prioritising human activities in order not to impede our health, the environment, and the future generation yet to be born.

Textile recycling: The process of turning old or unwanted textiles into new products, either by reusing the fabric or by breaking it down into its component fibres to make new textiles.

Upcycling: The act of converting discarded materials or undesired items into new materials or products that possess greater quality and worth.

Waste: Second-clothes that are beyond repairs.

Waste management: The act of getting rid of something, either through throwing it away, donating it, or selling it.



CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The theoretical, conceptual, and empirical literature on (second-hand clothing waste management in Accra Metropolis; its implication for environmental sustainability) is examined in this chapter. The chapter will cover the theoretical framework for second-hand clothing waste management, the history and context of the second-hand clothing trade, the role of second-hand clothing, textile waste management, environmental impacts of second-hand clothing waste management in Ghana, current second-hand clothing waste management practices in Ghana, factors influencing second-hand clothing waste management, implications of second-hand clothing waste management, reduction strategies, government and non-governmental efforts in addressing second-hand clothing waste management, sustainability in second-hand clothing waste management, opportunities and challenges for sustainable second-hand clothing waste management, empirical review, as well as, conceptual framework.

2.2 Theoretical framework

Second-hand clothing trade has become a significant industry in Ghana, and it has been growing for the past few decades. Ghana is one of the countries in Africa that has become a hub for second-hand clothing trade. The second-hand clothing market in Ghana is dominated by imported clothes from developed countries, and it has become an essential sector of the Ghanaian economy. Despite the economic benefits of second-hand clothing trade, its waste management has significant environmental implications, which are often overlooked. A theoretical framework for understanding the second-hand clothing waste management will provide an insight into its implications on environmental sustainability

in Ghana. Several theories and frameworks can be applied to this issue, including the Circular Economy Concept, Waste Hierarchy Concept, as well as, Sustainable Consumption and Production.

2.2.1 *Circular economy concept*

The concept of a circular economy has gained significant attention in recent years as a model for sustainable development. It is an approach that emphasises the design and production of products that can be reused, recycled, or repurposed to reduce waste and minimise environmental impacts. In the context of second-hand clothing waste management, a circular economy framework can provide a useful lens for understanding how to maximise the monetary, societal, and conservational benefits of second-hand clothing.

The circular economy is a concept that seeks to minimise waste and optimise resource usage by completing the production-consumption cycle. The goal is to keep materials in use for an extended period, and minimise waste by employing strategies like recycling, repairing, and reusing (Kirchherr et al., 2018). The circular economy framework revolves around three main principles: (1) eliminating waste and pollution through design, (2) ensuring materials and products are utilised as long as possible, and (3) regenerating natural systems (Ellen MacArthur Foundation, 2021).

The opening value, eliminating waste and pollution through design, involves creating products that are designed for longevity, are easily repairable, and are made from materials that can be recycled or repurposed. The second principle, ensuring materials and products are utilised as long as possible, involves maximising the lifespan of products through reuse, repair, and recycling. Finally, the third principle, regenerating natural systems, involves minimising environmental impacts and restoring natural systems

through sustainable production and consumption practices (Ellen MacArthur Foundation, 2021).

2.2.1.1 Application of circular economy concept framework to second-hand clothing waste management.

The circular economy concept framework can be applied to SHC waste management to maximise the fiscal, public, and ecological benefits of this practice. In Ghana, for example, second-hand clothing is a significant source of income for many individuals and plays an important role in the local economy (Amankwah-Amoah et al., 2020). By adopting a circular economy approach, it is possible to maximise the economic benefits of second-hand clothing waste management while minimising environmental impacts.

One way to apply the circular economy framework to SHC waste management is to encourage the reuse and repair of clothing. This can be done through education and awareness-raising campaigns that promote the value of second-hand clothing and the importance of maintaining and repairing clothing to extend its lifespan. Additionally, policies can be put in place to support the repair and reuse of clothing, such as tax incentives for clothing repair services or subsidies for SHC retailers.

Another way to apply the circular economy framework to second-hand clothing waste management is to promote the recycling and repurposing of clothing. This can be done by encouraging the development of textile recycling facilities that can transform discarded clothing into new products. Additionally, policies can be put in place to support the development of a local textile industry that utilises recycled materials.

2.2.2 *Waste hierarchy concept*

The waste hierarchy framework consists of five levels: prevention, preparation for reuse, recycling, energy recovery, and waste management. The framework advocates for a reduction in the generation of waste through prevention and minimising waste. In the context of second-hand clothing waste management, prevention involves reducing the amount of clothing that becomes waste by promoting responsible consumption and production practices (Brassell, 2020).

Preparation for reuse involves repairing, cleaning, and redistributing second-hand clothing to prolong its lifespan (Farrant, 2018). This practice has been successful in Ghana, where second-hand clothing is a valuable commodity. According to Obeng-Odoom (2017), the Ghanaian second-hand clothing industry has created jobs, reduced the country's import bill, and contributed to poverty reduction.

Recycling is the conversion of waste materials into new products. The recycling of textile waste is a challenge due to the complexity of textile materials, which are a blend of various fibres and finishes (Dissanayake & Zheng, 2019). However, innovative technologies such as chemical recycling and mechanical recycling have shown promise in addressing this challenge.

Energy recovery involves converting waste into energy through incineration or other thermal processes. While this option is viable, it has drawbacks, including the release of harmful gases into the environment (Ottosen et al., 2019).

Waste management is the least preferred option in the waste hierarchy framework, as it involves landfilling and other forms of waste management. Landfilling is the most

common form of waste management in Ghana, with second-hand clothing making up a significant portion of the waste stream (Aryeetey et al., 2018).

2.2.3 *Sustainable consumption and production*

The Sustainable Consumption and Production (SCP) framework emphasises the need for resource efficiency, waste minimisation, and the reduction of environmental impacts throughout the lifecycle of a product, from production to consumption and waste management. The framework promotes the use of sustainable production practices and the adoption of sustainable consumption patterns to achieve these goals (UNEP, 2010).

In the context of second-hand clothing waste management, the SCP framework offers opportunities for reducing the environmental impact of waste management practice. By promoting the use of second-hand clothing, the framework supports the circular economy concept, which emphasises the need to reuse and recycle materials to reduce waste and conserve resources (Ellen MacArthur Foundation, 2020). SHC is a prime example of the circular economy concept, as it involves the reuse of clothing that would otherwise end up in landfills or incinerators.

However, to fully realise the benefits of the SCP framework, it is necessary to address the challenges (lack of infrastructure, informal markets, lack of regulations, consumer perception, logistics and transportation) that hinder sustainable second-hand clothing waste management practices. One of the main challenges is the lack of infrastructure and systems to manage the waste management of second-hand clothing in an environmentally sound manner. This has led to the proliferation of informal markets and unregulated practices, which can lead to negative environmental and social impacts (Agyekum, 2018).

Efforts are being made to address these challenges and promote sustainable second-hand clothing waste management practices in Ghana. For instance, the Ghana Textile

Recycling Programme (GTRP) has been established to promote the reuse and recycling of textiles, including second-hand clothing (Ghana Textile Recycling Programme, 2019). The programme aims to create a market for recycled textiles, provide training and support to stakeholders, and promote awareness of the environmental and social benefits of sustainable textile recycling practices.

2.2.4 Implications for environmental sustainability

The theoretical framework of second-hand clothing waste management has implications on environmental sustainability. The circular economy concept promotes the reuse of clothing items, which reduces the need for new clothing production and minimises the use of natural resources. This, in turn, reduces the environmental impact associated with clothing production, such as greenhouse gas emissions, energy use, and water consumption (Ellen MacArthur Foundation, 2017).

The waste hierarchy concept promotes waste prevention and minimisation, which reduces the amount of clothing waste that ends up in landfills. This, in turn, reduces the environmental impact associated with landfilling, such as methane emissions, groundwater contamination, and soil degradation (EPA, 2011). The SCP framework promotes sustainable consumption and waste management practices, which support environmental sustainability by reducing the environmental impact associated with clothing production and waste management.

The waste hierarchy framework is a valuable tool for managing waste and promoting environmental sustainability. In the context of second-hand clothing waste management in Ghana, the preparation for reuse and recycling of textile waste are the preferred options. These options contribute to the circular economy, promote sustainability, and reduce the environmental impact of second-hand clothing waste management. The waste

management of second-hand clothing, particularly in landfills, has significant environmental implications and should be avoided.

2.3 History and context of second-hand clothing trade.

2.3.1 Developing countries

The history of the SHC trade in developing countries can be traced back to the era of colonialism. During this period, European colonisers exported second-hand clothing to their colonies, as they saw it as a way to dispose of unwanted clothing (Banjo et al., 2018). The second-hand clothing trade became a significant industry in many colonies, as it provided affordable clothing options for local populations.

The globalisation of the textile industry in the 1980s and 1990s had a significant impact on the second-hand clothing trade in developing countries. The shift of textile production to countries with lower labour costs led to the closure of many textile factories in developing countries. This created a demand for affordable clothing, which was met by the second-hand clothing trade (Banjo et al., 2018). The second-hand clothing trade became an important source of clothing for low-income populations in developing countries.

The second-hand clothing trade in developing countries is often associated with donations and aid from developed countries. Developed countries donate second-hand clothing to developing countries as a form of aid, which has led to the proliferation of the second-hand clothing trade in many developing countries (Gibson, 2015). While donations of second-hand clothing can be beneficial to those in need, it has also had significant impacts on local textile industries and the economies of developing countries.

2.3.2 *Ghana*

The history of second-hand clothing trade in Ghana is recalled from the 19th century when foreign traders brought worn clothes to the West African coast for trade. At the time, used clothes were considered inferior to new clothes, and they were mainly used by the poor and lower classes in society (Lambert, 2018). However, with the decline of the textile industry in Ghana in the 1960s and 1970s, SHC became a more affordable and accessible option for Ghanaians. The economic crisis and the introduction of structural adjustment programs led to the decline of the textile industry, and this created a market for second-hand clothing (Mensah et al., 2017).

In the 1980s, the SHC trade in Ghana grew significantly, and it became an essential sector of the Ghanaian economy. The trade was dominated by the importation of used clothes from developed countries, mainly from the United States, Canada, and Europe. The second-hand clothing trade provided affordable clothing options for Ghanaians, especially those in the low-income bracket (Kwakye et al., 2020).

The SHC trade in Ghana has become an integral part of the Ghanaian culture and lifestyle. It has created employment opportunities for many Ghanaians, especially in the retail sector. The second-hand clothing markets are found in almost every region in Ghana, and they offer a wide range of clothing options for Ghanaians. The second-hand clothing trade has also become a significant source of revenue for the government, as it generates import duties and taxes (Abayie et al., 2021).

Moreover, the SHC trade has also influenced fashion and style in Ghana. Ghanaians have developed a unique sense of fashion, which is a blend of traditional and modern styles. The second-hand clothing trade has provided Ghanaians with access to western-style clothing, which has influenced fashion trends in the country. The trade has also created a

culture of recycling and reusing, which is essential for environmental sustainability (Lambert, 2018).

In summary, SHC trade in Ghana has a long history, and it has become an essential aspect of the Ghanaian culture and lifestyle. The trade has provided affordable clothing options for Ghanaians, created employment opportunities, and influenced fashion trends in the country. However, the trade also has significant environmental implications, and there is a need for sustainable waste management practices to mitigate these implications.

2.4 The role of second-hand clothing

2.4.1 Economic impacts

The second-hand clothing industry has significant economic benefits. In many developing countries, the industry provides employment opportunities for individuals who may not have formal education or training (Luong et al., 2020). Moreover, second-hand clothing is generally more affordable than new clothing, making it accessible to lower-income individuals. This affordability factor also contributes to the growth of the industry, as consumers seek more cost-effective options for clothing (Bhateja et al., 2021). Moreover, sale of SHC can generate revenue for charitable organisations that sell donated items to support their programs (Kung et al., 2021).

2.4.2 Environmental impacts

The environmental impact of the fashion industry is well-documented, with clothing production and consumption contributing significantly to greenhouse gas emissions, water consumption, and waste generation (McKinsey & Company, 2016). Second-hand clothing plays an essential role in mitigating some of these negative impacts. By extending the life cycle of clothing, second-hand clothing reduces the demand for new clothing, thus reducing the carbon footprint of the fashion industry (Fletcher & Tham,

2016). Moreover, the production of second-hand clothing requires fewer resources than the production of new clothing, as it does not require the extraction of new raw materials or the use of energy-intensive manufacturing processes (Schmidt-Riediger et al., 2021). Finally, by diverting clothing from landfills, second-hand clothing reduces the amount of textile waste that ends up in the environment (Luong et al., 2020).

2.4.3 *Social impacts*

The social impacts of second-hand clothing are multifaceted. For one, second-hand clothing can contribute to a more diverse and eclectic fashion sense, as consumers have access to a wider range of styles and designs (Bhateja et al., 2021). Moreover, second-hand clothing can be seen as a form of self-expression, as consumers are free to mix and match items to create unique looks (Fletcher & Tham, 2016). The affordability of SHC can also help reduce economic inequality, as lower-income individuals are able to access fashionable clothing without breaking the bank (Kung et al., 2021). Finally, the donation of second-hand clothing to charitable organisations can contribute to social welfare programs, such as those that provide clothing to individuals experiencing homelessness or low-income families (Schmidt-Riediger et al., 2021).

The second-hand clothing industry plays a critical role in terms of its economic, environmental, and social impacts. The affordability of second-hand clothing, its ability to reduce the carbon footprint of the fashion industry, and its potential to support social welfare programs are just a few of the benefits of this growing industry. As the fashion industry continues to grapple with its negative environmental and social impacts, the importance of second-hand clothing is likely to grow even more significant in the coming years.

2.5 Textile waste management

Textile waste management is the process of getting rid of textile waste after its use or when it is no longer useful. The textile industry is one of the largest contributors to pollution globally, and its waste management has serious environmental implications. In recent years, there has been a growing concern over the amount of textile waste generated globally and the adverse effects it has on the environment.

2.5.1 Methods/Types of textile waste management

There are several methods of textile waste management, including landfilling, incineration, and recycling.

Landfilling: Landfilling is the most common method of textile waste management. It involves burying textiles in landfills, where they decompose over time. However, textiles take a long time to decompose, and in the process, they release harmful chemicals into the environment, including greenhouse gases like methane, which contributes to climate change (Koehler et al., 2019).

Incineration: Incineration is another method of textile waste management. It involves burning textiles at high temperatures to generate energy. However, this process also releases harmful chemicals into the environment, including carbon dioxide, nitrogen oxides, and sulphur dioxide (Vukusic et al., 2017).

Recycling: Recycling which involves converting textiles into new products, such as rags, or insulation and may include new clothing. Recycling reduces the expense of “textile waste” disposed of using “landfills”, and it also conserves natural possessions and energy. However, recycling requires significant investments in infrastructure and technology (Koehler et al., 2019).

Textile waste management has serious environmental implications, and there is a growing concern over the amount of textile waste generated globally. Landfilling and incineration release harmful chemicals into the environment, including greenhouse gases, which contribute to climate change. Initiatives to reduce textile waste and promote sustainable practices in the textile industry are crucial to mitigating the environmental impact of textile waste management.

2.5.2 *Laws on textile waste management*

2.5.2.1 *Global laws on textile waste management*

Several international organisations have put in place laws and regulations to manage textile waste management globally. The United Nations Environment Programme (UNEP) launched the Sustainable Fashion and Lifestyle Programme in 2017, which aims to mitigate the environmental consequences of the fashion industry, and promote sustainable fashion practices (UNEP, 2017). The Ellen MacArthur Foundation's Circular Fibres Initiative, launched in 2017, also aims to build a circular economy for textiles by promoting the reuse and recycling of textile waste (Ellen MacArthur Foundation, 2017).

The European Union has also implemented regulations to manage textile waste management. The European Union Waste Framework Directive (2008/98/EC) requires member states to implement waste management plans, which include measures to reduce, reuse, and recycle textile waste (European Commission, 2008). The European Union also implemented the Restriction of Hazardous Substances (RoHS) Directive, which restricts the use of hazardous chemicals in textiles and other products (European Commission, 2011).

2.5.2.2 *Laws on textile waste management in Ghana*

In Ghana, the textile industry is one of the largest contributors to the country's economy. However, the waste generated from the industry has posed a significant challenge for waste management systems. The Ghana Environmental Protection Agency (EPA) has put in place several initiatives to manage textile waste management in the country.

The Ghana EPA launched the Cleaner Production Programme, which aims to reduce the environmental impact of industries, including the textile industry. The programme provides technical assistance to industries to reduce waste and increase energy efficiency (Ghana EPA, 2013). The EPA has also implemented the National Environmental Sanitation Policy, which sets out guidelines for waste management and waste management in the country (Ghana EPA, 2010).

Additionally, the government of Ghana implemented the National Plastic Management Policy in 2015, which aims to reduce the use of plastics and promote the use of biodegradable materials (Government of Ghana, 2015). The policy includes measures to manage plastic waste, including the promotion of recycling and the ban of non-biodegradable plastics.

Governments, international organisations, and industry stakeholders must collaborate to reduce the environmental impact of the textile industry's waste management. The laws and regulations put in place to manage textile waste management globally and in Ghana are crucial in ensuring compliance with environmental standards and promoting sustainable waste management practices.

2.6 Environmental impacts of second-hand clothing waste management in Ghana

Landfills and waste management: The waste management of second-hand clothing in landfills is a significant environmental concern in Ghana. Second-hand clothing is often discarded with other waste materials, and this contributes to the accumulation of waste in landfills. The improper waste management of second-hand clothing in landfills can lead to leachate and greenhouse gas emissions, which can cause environmental pollution and climate change (Boadi et al., 2020).

Water Pollution: The waste management of SHC in water bodies is another environmental concern in Ghana. Second-hand clothing is often discarded in water bodies, such as rivers and streams, and this can lead to water pollution. The chemicals used in the production of clothing can leach into the water bodies, leading to contamination of the water and harm to aquatic life (Akuffo et al., 2021). The waste management of SHC in water bodies can also lead to blockages of waterways, which can cause flooding and environmental degradation.

Air Pollution: The burning of second-hand clothing is a common practice in Ghana, and this contributes to air pollution. Second-hand clothing is burned to create space in markets and to dispose of unsold clothing. The burning of second-hand clothing releases toxic chemicals into the air, which can cause respiratory problems and other health issues (Owusu-Sekyere et al., 2018). The burning of second-hand clothing also contributes to climate change, as it releases greenhouse gases into the atmosphere.

Soil Contamination: The waste management of second-hand clothing in landfills can lead to soil contamination. The chemicals used in the production of clothing can leach into the soil, leading to soil contamination and harm to plant life (Akuffo et al., 2021).

The improper waste management of second-hand clothing can also lead to the spread of disease, as rodents and other pests can be attracted to the clothing in landfills.

The waste management of second-hand clothing in Ghana hence has significant environmental implications. The improper waste management of second-hand clothing can lead to landfills and waste management problems, water pollution, air pollution, and soil contamination. There is a need for sustainable waste management practices to mitigate the environmental impacts of second-hand clothing waste management in Ghana. The government and other stakeholders should work together to develop and implement sustainable waste management practices to promote environmental sustainability in the second-hand clothing trade.

2.7 Second-hand clothing waste management practices in Ghana

Landfills: The waste management of second-hand clothing in landfills is a common practice in Ghana. Second-hand clothing is often discarded with other waste materials, which can lead to leachate and greenhouse gas emissions. There is a need for proper waste management practices to mitigate the environmental impacts of SHC waste management (Boadi et al., 2020).

Burning: Burning of SHC is another waste management practice in Ghana. This practice is often done by vendors who want to dispose of clothing that is unsellable. Burning of SHC releases toxic chemicals into the air, which can lead to air pollution and respiratory problems (Owusu-Antwi et al., 2020). Burning of second-hand clothing is also illegal under Ghana's environmental laws.

Donations: Donations of SHC to charity organisations are also a common practice in Ghana. While donations can be beneficial to those in need, it also leads to an increase in the volume of SHC in Ghana. Charity organisations often have limited storage space,

which can lead to the improper waste management of SHC. The waste management of second-hand clothing by charity organisations often involves burning or burying the clothing (Boadi et al., 2020).

Informal Recycling: Informal recycling of second-hand clothing is another common practice in Ghana. Informal recycling involves the collection of second-hand clothing by individuals who sort and resell the clothing. This practice has created employment opportunities in Ghana. However, the informal recycling of SHC is often done in unsanitary conditions, which can lead to health hazards (Boadi et al., 2020).

Generally, the waste management of SHC in Ghana is still a significant environmental concern. The common waste management practices in Ghana, such as landfills, burning, donations, and informal recycling, have significant environmental and health impacts. There is a need for proper waste management practices to mitigate the environmental impacts of SHC waste management in Ghana. The promotion of sustainable SHC practices in Ghana can help to reduce the environmental impacts of SHC waste management.

2.8 Factors influencing second-hand clothing waste management

Consumer Attitudes: Consumer attitudes play a significant role in the waste management of SHC in Ghana. Consumers' attitudes towards second-hand clothing can influence their buying decisions and waste management practices. The desire to own new clothing and the perception of second-hand clothing as inferior can lead to the waste management of second-hand clothing (Agyeiwaa et al., 2020). The negative attitudes towards second-hand clothing can also result in the stigmatisation of those who wear second-hand clothing, leading to the waste management of clothing.

Economic Factors: Economic factors also influence the waste management of second-hand clothing in Ghana. The demand for new clothing has led to an increase in the waste management of second-hand clothing. Consumers' preference for new clothing is driven by the perception that new clothing is of higher quality than second-hand clothing (Owusu-Antwi et al., 2020). Economic factors such as income and affordability also influence the waste management of second-hand clothing. Consumers who can afford to purchase new clothing are more likely to dispose of their SHC.

Fashion Trends: Fashion trends also influence the waste management of second-hand clothing in Ghana. Consumers often dispose of their SHC to keep up with the latest fashion trends. The desire to own fashionable clothing can lead to the waste management of second-hand clothing, even if the clothing is still in good condition (Agyeiwaa et al., 2020). Fashion trends also influence the supply and demand for SHC. Clothing that is no longer in fashion is more likely to be disposed of than clothing that is still in fashion.

Availability of Waste management Options: The availability of waste management options also influences the waste management of SHC in Ghana. Consumers who have access to proper waste management options such as recycling or donating are more likely to dispose of their SHC properly. However, the lack of proper waste management options can lead to improper waste management of SHC, such as burning or dumping in landfills (Boadi et al., 2020).

Overall, the waste management of SHC in Ghana is influenced by various factors such as consumer attitudes, economic factors, fashion trends, and the availability of waste management options. The negative attitudes towards second-hand clothing and the desire for new clothing have led to an increase in the waste management of second-hand clothing.

2.9 Implications of second-hand clothing waste management

2.9.1 Economic implications

Impact on Local Textile Industries: The waste management of second-hand clothing has a significant impact on local textile industries. The importation of second-hand clothing can lead to a decline in demand for locally produced textiles, which can result in job losses and decreased economic growth (Mwaura et al., 2021).

Reduction in Government Revenue: The importation of second-hand clothing has also led to a reduction in government revenue in developing countries. The importation of second-hand clothing is often subject to lower tariffs and taxes than new clothing, leading to a decrease in government revenue (Agyeiwaa et al., 2020). The reduction in government revenue can impact the provision of public goods and services, such as healthcare and education.

Contribution to Waste Management Costs: The improper waste management of second-hand clothing can contribute to waste management costs in developing countries. The waste management of SHC in landfills can lead to the accumulation of textile waste, which can be difficult and expensive to manage (Boadi et al., 2020). The cost of managing textile waste can impact the budget of waste management authorities, leading to a reduction in other essential services.

2.9.2 Social implications

Perpetuation of Poverty: The waste management of second-hand clothing can perpetuate poverty in developing countries. The importation of second-hand clothing can undermine the local textile industry, leading to job losses and decreased economic growth. The reliance on second-hand clothing can also prevent the development of a local fashion

industry, limiting opportunities for entrepreneurship and innovation (Mwaura et al., 2021).

Stigmatisation of Second-Hand Clothing Wearers: The stigmatisation of second-hand clothing wearers can have social implications in developing countries. The negative attitudes towards second-hand clothing can lead to the stigmatisation of those who wear second-hand clothing. The stigmatisation can lead to discrimination and a lack of social acceptance, perpetuating inequalities in society (Agyeiwaa et al., 2020).

Environmental Degradation: The improper waste management of second-hand clothing can also have environmental implications. The waste management of second-hand clothing in landfills can contribute to the accumulation of textile waste, leading to environmental degradation. The burning of second-hand clothing can also release toxic chemicals into the atmosphere, contributing to air pollution (Boadi et al., 2020). This at large extent, reduce social activeness which slows the progress of social cohesion.

The waste management of second-hand clothing has significant economic and social implications in developing countries. The importation of second-hand clothing can lead to a decline in local textile industries, a reduction in government revenue, and an increase in waste management costs. The reliance on second-hand clothing can also perpetuate poverty and stigmatise second-hand clothing wearers. There is a need for sustainable second-hand clothing practices to minimise the economic and social implications of second-hand clothing waste management in developing countries.

2.10 Waste management and environmental sustainability

Environmental sustainability is a fundamental principle underpinning responsible global citizenship. It signifies a harmonious coexistence between human activities and the environment, encompassing economic, social, and environmental dimensions (Dresner,

2008). At its essence, environmental sustainability signifies the responsible use of natural resources, the preservation of ecological integrity, and the assurance that the needs of the present generation are met without compromising the ability of future generations to meet their own needs (WCED, 1987). This concept is deeply rooted in the principles of intergenerational equity, resilience, and balance.

In the unique context of Accra, a bustling metropolis in a developing country, the significance of environmental sustainability becomes increasingly apparent. Like many other rapidly urbanising regions, Accra grapples with complex challenges arising from population growth, urbanisation, and unsustainable patterns of resource consumption. These challenges pose a direct threat to the city's environment, human well-being, and the prospects of future generations. As such, the pursuit of environmental sustainability becomes a critical imperative. In relation, Accra, emblematic of urban centres in the developing world, confronts multifaceted urban challenges. Rapid urbanisation leads to increased demand for resources, land, and infrastructure. Population growth strains existing urban systems, from transportation and housing to sanitation and waste management. Furthermore, the unchecked expansion of cities can result in environmental degradation, including deforestation, soil erosion, and air and water pollution (UN-Habitat, 2016). These challenges pose a direct threat to the well-being of urban dwellers and the environment.

2.10.1 Waste management as a pillar of sustainability.

Waste management constitutes a foundational aspect of environmental stewardship. It encompasses the comprehensive management of waste materials throughout their lifecycle, which includes their generation, collection, transportation, waste management, and recycling (UNEP, 2015). This holistic approach to waste ensures that it is handled responsibly and effectively, reducing its adverse environmental impacts.

Accra, a vibrant metropolis in Ghana, grapples with significant waste generation, exacerbated by the thriving second-hand clothing trade. This sector plays a crucial role in providing affordable clothing options and economic opportunities for many residents. However, the flip side of its success is a substantial increase in waste production. Waste generated by second-hand clothing dealers in Accra consists mainly of discarded clothing items, packaging materials, and non-recyclable waste.

A notable challenge arises from the informal nature of many dealers' operations. Without access to adequate waste management infrastructure, these dealers may resort to improper waste handling practices (Frimpong & Asante, 2008). This can lead to dire environmental consequences, including:

2.10.1.1 Increased greenhouse gas emissions

Improper waste management of textiles is a significant concern due to its contribution to greenhouse gas emissions. When textiles end up in landfills, they undergo anaerobic decomposition, a process that occurs in the absence of oxygen. This decomposition process releases methane, a potent greenhouse gas, into the atmosphere (Breitenstein et al., 2019). Methane is approximately 25 times more effective at trapping heat in the atmosphere compared to carbon dioxide over a 100-year period (EPA, 2021). Therefore, the release of methane from improperly disposed textiles exacerbates global environmental challenges, particularly climate change.

The consequences of increased greenhouse gas emissions extend beyond Accra's boundaries. Climate change, driven in part by such emissions, can lead to a range of adverse impacts, including more frequent and severe weather events, rising sea levels, and disruptions to ecosystems (IPCC, 2018). Accra itself is not immune to these effects,

as climate change can influence local weather patterns, precipitation, and temperatures, affecting the livelihoods and well-being of its residents.

2.10.1.2 Landfill overuse

Accumulation of non-biodegradable waste, such as textiles, in landfills not only contributes to environmental pollution but also strains the city's waste management capacity. Landfills have finite space, and excessive use can lead to premature closure and the need to identify new landfill sites, which can be challenging in densely populated urban areas (Troschinetz & Mihelcic, 2009). The depletion of land resources for landfill sites can encroach upon valuable agricultural or natural areas, exacerbating land-use conflicts.

Moreover, overused landfills may pose risks to nearby communities. The decomposition of waste generates a range of gases and leachates that can contaminate groundwater and soil, potentially affecting the quality of drinking water and agricultural lands (Smith, 2001). This highlights the importance of adopting sustainable waste management practices to reduce the burden on landfills and protect local ecosystems.

2.10.1.3 Soil and water contamination

Improper waste management practices within the second-hand clothing trade can result in soil and water contamination. As textiles degrade, they may release harmful chemicals and dyes into the surrounding environment. These contaminants can infiltrate the soil, affecting its fertility and composition, and seep into nearby water sources (Pellow, 2008). This poses significant risks to both the environment and human health.

Contaminated soil can hinder agricultural productivity, impacting food security and livelihoods in the region. Additionally, when contaminants enter water bodies, they can disrupt aquatic ecosystems and pose health hazards to communities that rely on these

water sources for drinking and irrigation. The consequences of such contamination can include the bioaccumulation of toxins in aquatic organisms, affecting the entire food chain and potentially leading to health issues among local populations (UNEP, 2016).

2.10.2 Sustainable solutions for waste management in the second-hand clothing trade

Addressing waste management challenges within the second-hand clothing trade in Accra is not only crucial for environmental sustainability but also for the overall well-being of the city's residents. To achieve sustainable waste management within this sector, a holistic approach is needed, encompassing various strategies and initiatives.

2.10.2.1 Infrastructure enhancement

Investing in enhanced waste collection and waste management infrastructure tailored to the unique needs of the second-hand clothing trade is a fundamental step towards sustainability. This includes:

Specialised Collection Points: Designating collection points specifically for second-hand clothing waste allows for efficient and segregated waste collection. These collection points can be strategically located near markets or dealers' areas, minimising the need for long transportation routes.

Safe and Secure Waste management Sites: Establishing designated waste management sites that comply with environmental and safety standards is essential. These sites should have proper waste containment systems to prevent soil and water contamination, along with methane capture mechanisms to mitigate greenhouse gas emissions.

Integration of Informal Sector: Acknowledging and integrating informal waste pickers and collectors into the formal waste management system can improve the efficiency of waste collection while providing livelihood opportunities for marginalised individuals (Wilson, 2009).

2.10.2.2 Waste reduction and recycling

Promoting waste reduction and recycling initiatives among second-hand clothing dealers can significantly contribute to sustainability by diverting textiles and packaging materials from landfills. This involves:

Textile Reuse: Encouraging dealers to repair, refurbish, or upcycle clothing items instead of discarding them. Additionally, promoting the resale of unsellable items as rags or for industrial purposes can extend the lifespan of textiles.

Packaging Materials Recycling: Dealers can be educated on the benefits of reusing or recycling packaging materials like plastic bags and cardboard boxes rather than disposing of them after a single use. This reduces waste generation and conserves resources.

Consumer Engagement: Engaging consumers through awareness campaigns on the importance of sustainable fashion practices, such as buying second-hand clothing and recycling textiles, can influence their purchasing behaviours and contribute to waste reduction (Kang & Kim, 2017).

2.10.2.3 Education and awareness

Raising awareness among both second-hand clothing dealers and consumers is pivotal in fostering behavioural change and sustainable waste management practices. Initiatives in this regard can include:

Training Programs: Providing training programs to dealers on waste management best practices, including sorting and waste management techniques, can equip them with the knowledge and skills needed for responsible waste handling.

Consumer Education: Educating consumers about the environmental and social impacts of their choices, such as the benefits of buying second-hand clothing, can lead to more sustainable consumption patterns (Hyllegard et al., 2011).

Advocacy and Partnerships: Collaborating with local NGOs, community organisations, and government agencies to advocate for sustainable waste management practices and provide support and resources for implementing these practices.

2.11 Government and non-governmental efforts in addressing second-hand clothing waste management

2.11.1 Government efforts

Policy and legislative framework: The Ghanaian government has developed policies and legislative frameworks to address second-hand clothing waste management in the country. In 2015, the Ministry of Trade and Industry developed a National Textile Policy to promote the growth and development of the local textile industry (Government of Ghana, 2015). The policy aimed to reduce the importation of second-hand clothing and increase the production of locally made textiles.

Ban on SHC: In 2021, the Ghanaian government announced a ban on the importation of SHC in the country. The ban aimed to promote the growth of the local textile industry and reduce the environmental impact of second-hand clothing waste management (Africa News, 2021). However, the ban has faced challenges due to the high demand for second-hand clothing and the lack of alternatives.

2.11.2 Non-governmental efforts

Advocacy and Awareness Campaigns: Non-governmental organisations (NGOs) have played a crucial role in raising awareness about the impact of second-hand clothing waste management in Ghana. NGOs such as the African Youth Initiative on Climate Change have organised advocacy campaigns and workshops to educate the public about the environmental and social implications of second-hand clothing waste management (Adjei et al., 2020).

Promotion of sustainable Fashion: NGOs have also promoted sustainable fashion practices to reduce the reliance on second-hand clothing in Ghana. The Ghana Sustainable Fashion Week, organised by the Ethical Fashion Initiative, aimed to promote sustainable fashion practices and encourage the production and consumption of locally made textiles (Ethical Fashion Initiative, 2021).

Recycling and Upcycling: NGOs such as the Waste Recovery Platform have promoted the recycling and upcycling of second-hand clothing in Ghana. The organisation collects textile waste and transforms it into new products such as bags, rugs, and clothing (Boadi et al., 2020). The recycling and upcycling of second-hand clothing can reduce waste management costs and promote sustainable fashion practices.

In essence, the government and non-governmental efforts in addressing second-hand clothing waste management in Ghana have focused on promoting sustainable fashion practices and reducing the reliance on second-hand clothing. The government has developed policies and legislative frameworks to promote the growth of the local textile industry and reduce the importation of second-hand clothing. NGOs have played a crucial role in raising awareness about the impact of second-hand clothing waste management and promoting sustainable fashion practices. The recycling and upcycling of second-hand clothing have also been promoted to reduce waste management costs and promote sustainable fashion practices. However, there is a need for more concerted efforts from all stakeholders to address the environmental and social implications of second-hand clothing waste management in Ghana.

2.12 Sustainability in second-hand clothing waste management

Sustainability in second-hand clothing waste management is essential for environmental protection and social and economic development. Sustainable second-hand clothing

waste management refers to the efficient and environmentally friendly waste management of used clothing. Sustainable waste management practices reduce waste, prevent pollution, and promote the recycling and reuse of clothing. According to Asante-Darko et al., (2017), sustainable second-hand clothing waste management can create employment opportunities, enhance local manufacturing, and improve social and environmental sustainability.

2.12.1 Environmental sustainability

The waste management of second-hand clothing has significant environmental implications due to the large quantities of textiles that are generated globally. Second-hand clothing waste management can lead to environmental degradation through the production of greenhouse gases, the depletion of natural resources, and the accumulation of waste in landfills (Fisher, 2019). The textile industry is responsible for a considerable amount of greenhouse gas emissions, mainly due to the energy-intensive production processes involved in creating new textiles (Ellen MacArthur Foundation, 2017). The production of new textiles also leads to the depletion of natural resources such as water and energy, which can be conserved through the recycling and reuse of second-hand clothing (Gwilt & Rissanen, 2011).

In addition, second-hand clothing waste management can also contribute to the accumulation of waste in landfills, as textiles take a long time to decompose. This waste can release harmful chemicals and greenhouse gases into the environment, leading to pollution and climate change (Patel & Dass, 2019). Recycling and reusing second-hand clothing can help to reduce waste and limit the negative impact on the environment.

2.12.2 *Social sustainability*

The social implications of second-hand clothing waste management are significant and often overlooked. The second-hand clothing trade provides opportunities for employment and income generation, particularly in developing countries where the trade is widespread (Lu, 2015). The trade also provides affordable clothing options for low-income individuals and communities, contributing to poverty reduction and social sustainability (Vestergaard, 2016).

However, the second-hand clothing trade can also have negative social implications. The trade has been criticised for promoting a culture of dependency and undermining local textile production and manufacturing industries (Lu, 2015). Additionally, the trade can lead to exploitation and poor working conditions for those involved in its production and distribution (Gwilt & Rissanen, 2011).

2.12.3 *Economic sustainability*

The fiscal implications of SHC waste management are complex and multifaceted. The trade provides economic opportunities for small-scale entrepreneurs and contributes to the growth of the informal sector (Gwilt & Rissanen, 2011). It also contributes to the circular economy by extending the lifespan of textiles and reducing the need for new textile production (Fisher, 2019).

However, the second-hand clothing trade can also have negative economic implications, particularly for local textile and clothing industries. The influx of second-hand clothing can lead to a decline in demand for locally produced textiles and clothing, leading to job losses and reduced economic growth (Lu, 2015). Additionally, the trade can perpetuate a cycle of poverty by limiting the growth of local industries and reducing the value of local currencies (Gwilt & Rissanen, 2011).

Generally, the sustainability of second-hand clothing waste management is a complex issue with significant environmental, social, and economic implications. While the trade provides economic opportunities and affordable clothing options, it also contributes to environmental degradation, exploitation, and the decline of local textile industries. To ensure the sustainability of second-hand clothing waste management, policymakers and stakeholders must adopt a holistic approach that considers the environmental, social, and economic impacts of the trade. This approach should include the development of policies and initiatives that promote the recycling and reusing of textiles, support the industry.

2.13 Opportunities and challenges for sustainable second-hand clothing waste management

2.13.1 Global

One of the opportunities for sustainable second-hand clothing waste management globally is the growing demand for circular economy practices. The circular economy model involves the reduction, reuse, and recycling of waste materials to create a closed-loop system that supports sustainable production and consumption. The growth of the circular economy has resulted in the development of fresh business concepts that promote the recycling of used clothing (Remya & Linderman, 2020).

Another opportunity for sustainable second-hand clothing waste management globally is the use of technology. New technologies such as Blockchain, machine learning, and artificial intelligence can help to create a more efficient and transparent second-hand clothing value chain. Blockchain technology can be used to track the movement of second-hand clothing, thereby ensuring that they are properly disposed of (Fu, Lim, Gunasekaran, & Wu, 2020). Machine learning and artificial intelligence can be used to analyse consumer data and predict consumer behaviour, thereby facilitating the

development of more effective second-hand clothing waste management strategies (Hoffmann, 2020).

2.13.2 Ghana

Several opportunities can promote sustainable second-hand clothing waste management in Ghana. The first opportunity is the establishment of a local textile industry that produces affordable and durable clothing for Ghanaians. According to Sibere and Nyuur (2019), reviving the textile industry can create employment opportunities, promote local manufacturing, and reduce the country's dependence on imported clothing.

Also, it is important to help facilitate the reuse and recycling of second-hand clothing (SHC). Engaging in the recycling and reusing of clothing not only minimises waste and pollution but also plays a significant role in fostering sustainable consumption. As highlighted by Addo et al. (2019), this practice can lead to the creation of employment opportunities and contribute to the promotion of sustainable development.

Furthermore, fostering sustainable waste management practices through education and awareness is crucial. Educating individuals about the significance of sustainable waste management can lead to a shift in attitudes and behaviour, particularly regarding second-hand clothing waste management. As emphasised by Kumi et al. (2019), implementing education and awareness campaigns is instrumental in promoting sustainable second-hand clothing waste management, thereby contributing to environmental protection.

Another opportunity for sustainable second-hand clothing waste management in Ghana is the growing interest in sustainable fashion. The rise of sustainable fashion has led to an increased demand for environmentally friendly clothing, thereby creating an opportunity for the development of sustainable second-hand clothing waste management practices in the country (Ahn, Lee, & Lee, 2019). The Ghanaian government has also

made efforts towards achieving sustainable second-hand clothing waste management practices. For instance, the Ministry of Environment, Science, Technology, and Innovation has partnered with the European Union to launch a project aimed at improving the management of waste in the country (Ghana News Agency, 2018).

The use of entrepreneurship is also an opportunity for sustainable second-hand clothing waste management in Ghana. The development of small and medium-sized enterprises (SMEs) can facilitate the creation of sustainable second-hand clothing waste management practices in the country. SMEs can be used to collect, sort, and recycle second-hand clothing, thereby promoting sustainable practices (Kargbo, 2019).

2.14 Challenges for sustainable second-hand clothing waste management

Despite the opportunities for sustainable second-hand clothing waste management, there are several challenges that hinder its implementation in Ghana. The first challenge is the lack of infrastructure for sustainable waste management practices. According to Asante-Darko et al., (2017), Ghana lacks the necessary infrastructure, such as recycling plants and waste management facilities, to support sustainable second-hand clothing waste management.

The high cost of sustainable waste management practices is another challenge. Sustainable waste management practices such as recycling and reusing clothing require investment in infrastructure and technology, which can be expensive for individuals and the government. According to Sibere and Nyuur (2019), the high cost of sustainable waste management practices can hinder its implementation in Ghana.

Again, there is lack of regulatory framework for second-hand clothing waste management. The absence of laws and policies for second-hand clothing waste management can lead to environmental pollution and unethical business practices.

According to Addo et al., (2019), the government's failure to regulate second-hand clothing waste management can hinder sustainable development. Below categorises the challenges into environmental, economic and social challenges.

2.14.1 Environmental challenges

The waste management of second-hand clothing has severe environmental implications. In Ghana, most of the imported second-hand clothing is disposed of in landfills or open burning sites, which results in the release of toxic chemicals and greenhouse gases into the atmosphere (Kpadonou et al., 2020). Similarly, in other countries like India, second-hand clothing waste management in open-air markets has led to soil and water pollution due to the leaching of dyes and other chemicals from the clothing (Gupta, 2018). Moreover, the transportation of second-hand clothing from developed to developing countries also contributes significantly to greenhouse gas emissions, which further exacerbate the climate crisis (Birtwistle & Moore, 2007).

2.14.2 Economic challenges

Second-hand clothing trade has both positive and negative economic impacts on the importing countries. In Ghana, the trade provides employment opportunities for many people in the distribution and sale of second-hand clothing (Adom & Kumi, 2019). However, it also has negative economic impacts, such as the displacement of local textile industries and the influx of cheap foreign products that hinder the growth of domestic industries (Hoskins & Mirza, 2018). Moreover, the lack of regulation in the second-hand clothing trade has led to a loss of revenue for the government through tax evasion and corruption (Osei et al., 2020).

2.14.3 *Social challenges*

The waste management of second-hand clothing has also created social challenges in Ghana. For instance, the entry of cheap SHC has led to a decline in the demand for locally produced textiles, which has resulted in the loss of jobs in the textile industry (Adom & Kumi, 2019). Similarly, the importation of second-hand clothing has led to the erosion of cultural identity, as people opt for western-style clothing (Hoskins & Mirza, 2018). Additionally, the presence of second-hand clothing in local markets has created a negative perception of locally produced clothing, which affects the cultural identity of the country.

Various stakeholders have made efforts to address the challenges related to second-hand clothing waste management. In Ghana, the government has implemented policies aimed at promoting the growth of local textile industries and reducing the importation of second-hand clothing (Kwakye et al., 2021). Similarly, non-governmental organisations such as the African Clothing and Footwear Research Network (ACFRN) have advocated for sustainable second-hand clothing waste management and the promotion of locally produced textiles (Lyon, 2020). Additionally, some companies have started to invest in sustainable second-hand clothing waste management, such as Patagonia's Worn Wear program, which repairs and resells used clothing to extend its life cycle (Bain, 2020).

Sustainable second-hand clothing waste management practices are essential for achieving environmental sustainability. The opportunities for sustainable second-hand clothing waste management across the world and in Ghana include the growing demand for circular economy practices, the use of technology, the rise of sustainable fashion, and the development of SMEs. However, there are also challenges, such as the lack of proper regulations and awareness. Efforts should be made to address these challenges to ensure

the promotion of sustainable second-hand clothing waste management practices globally and in Ghana.

The waste management of second-hand clothing has severe environmental, economic, and social implications, and efforts are being made by various stakeholders to address these challenges. However, there is a need for more comprehensive and sustainable solutions that involve all players, to promote sustainable second-hand.

2.15 Waste management practices in Ghana (Empirical review)

A study by Aning and Apusigah (2017) investigated the waste management practices of second-hand clothing in Accra, Ghana. The study found that the majority of the disposed second-hand clothing is either burned or buried, which has significant bad bearings on the environment. Burning of second-hand clothing releases harmful gases such as carbon monoxide, sulphur dioxide, and nitrogen oxides into the atmosphere, contributing to air pollution. Additionally, burying second-hand clothing in landfills contributes to the accumulation of non-biodegradable waste and can result in the leaching of toxic chemicals into the soil and groundwater.

Another study by Atiemo and Osei-Kwasi (2019) examined the attitudes and behaviours of consumers towards second-hand clothing waste management in Ghana. The study found that a significant proportion of the respondents disposed of second-hand clothing through burning or burying, while only a small percentage donated or sold them. The study also revealed that lack of awareness and limited access to appropriate waste management facilities were some of the factors contributing to poor waste management practices.

Furthermore, a study by Mensah and Amponsem (2018) assessed the role of government policies in promoting sustainable second-hand clothing waste management practices in

Ghana. The study found that although there were policies in place to promote sustainable waste management practices, the implementation was poor due to a lack of resources and inadequate monitoring and enforcement mechanisms.

A study by Gogo and Obeng-Odoom (2021) investigated the impact of COVID-19 on second-hand clothing waste management in Ghana. The study found that the pandemic led to a significant reduction in the volume of second-hand clothing imports and waste management, which had both positive and negative impacts. While the reduction in waste management reduced the environmental impact, it also had negative impacts on the livelihoods of traders and the economy.

Again, a study conducted by Dzisi and Agbeshie-nunoo (2019) on the environmental impact of second-hand clothing waste management in Accra, Ghana, revealed that the waste management of second-hand clothing contributes significantly to environmental pollution. The study found that the main sources of environmental pollution are the burning of second-hand clothing, which releases toxic fumes into the atmosphere, and the dumping of the used clothing in landfills, which contributes to soil and water pollution. The study suggested that there is a need for a comprehensive waste management system that includes the collection, sorting, and recycling of SHC to mitigate the environmental impacts of SHC waste management.

According to Acheampong et al., (2019), the factors that influence second-hand clothing waste management in Ghana include the availability and affordability of second-hand clothing, cultural and social factors, and government policies. The study found that the high cost of new clothing makes second-hand clothing an attractive alternative for low-income households. Additionally, cultural and social factors, such as the desire for fashionable clothing, contribute to the high demand for second-hand clothing in Ghana.

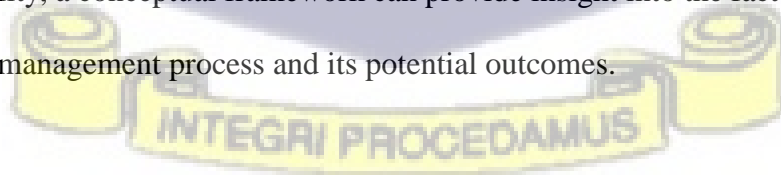
The study also found that government policies, such as import tariffs, affect the availability and affordability of second-hand clothing in the country.

A study by Essumang and Adomako (2021) on the current second-hand clothing waste management practices in Accra, Ghana, revealed that most second-hand clothing is either sold in open-air markets or discarded in landfills. The study found that the lack of a proper waste management system and the low value placed on second-hand clothing contribute to the poor waste management practices in the country. The study suggested that there is a need for a proper waste management system that includes the sorting, collection, and recycling of second-hand clothing to promote sustainable waste management practices.

Overall, these studies highlight the negative environmental impacts of poor second-hand clothing waste management practices in Ghana and the need for sustainable waste management policies and practices. The findings also emphasise the importance of creating awareness and improving access to appropriate waste management facilities to promote sustainable second-hand clothing waste management practices.

2.16 Conceptual framework

A conceptual framework provides a visual representation of the research problem and helps to identify key variables and relationships between them. In the context of second-hand clothing waste management in Ghana and its implications for environmental sustainability, a conceptual framework can provide insight into the factors that influence the waste management process and its potential outcomes.



Conceptual Framework for Second-Hand Clothing Waste management and Environmental Sustainability

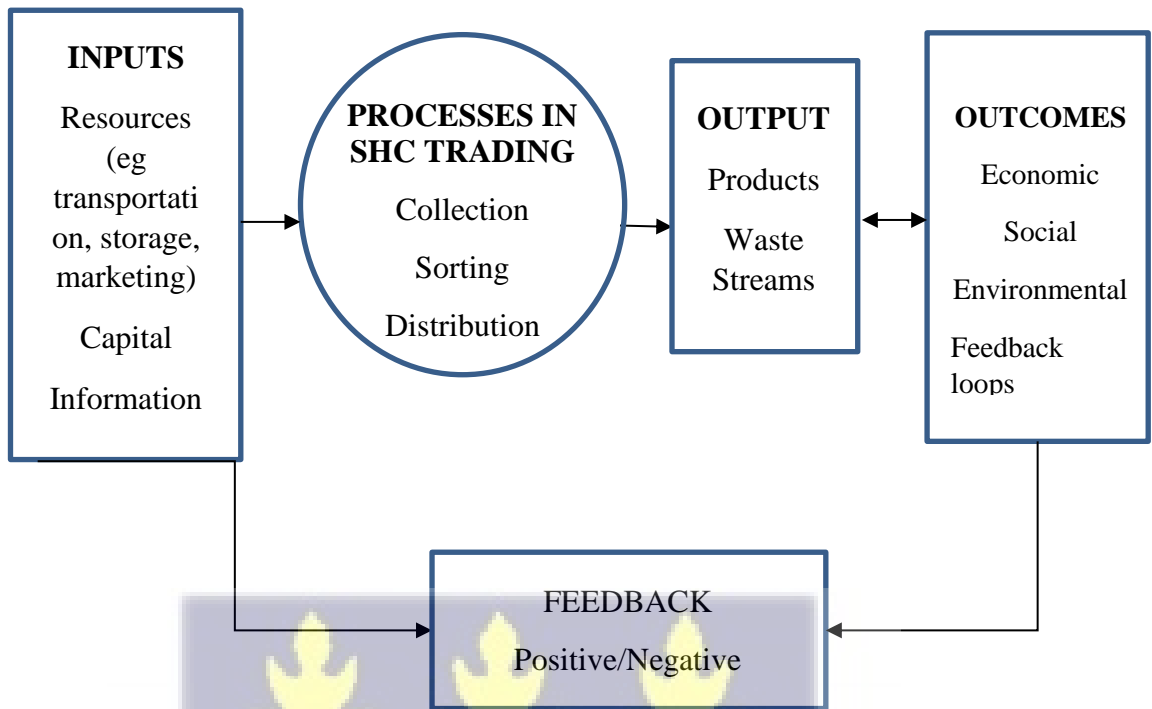


Fig. 2.1: Second-Hand Clothing Waste management and Environmental Sustainability

Source: *Author's Construct*

The framework includes five key components adopted from systems theory (Farrant & Carrigan, 2017):

Inputs: These are the resources that are required to support the second-hand clothing trade, such as transportation, storage, and marketing infrastructure. The quality and availability of these resources can impact the efficiency and sustainability of the waste management process.

Processes: These are the activities that take place within the second-hand clothing trade, including collection, sorting, and distribution. The processes involved can affect the quality of the clothing that is ultimately sold, as well as the amount of waste generated.

Outputs: These are the products and waste streams that result from the second-hand clothing trade. The quality and quantity of these outputs can have significant environmental impacts.

Feedback loops: These loops represent the interactions between the inputs, processes, and outputs. For example, the availability of high-quality clothing inputs may lead to more efficient sorting and distribution processes, which in turn can generate less waste output.

Outcomes: These are the ultimate results of the second-hand clothing trade, including economic, social, and environmental impacts. These outcomes can be positive or negative, depending on how the inputs, processes, and feedback loops are managed.

To exemplify the utilisation of this conceptual framework, let's examine a second-hand clothing market located in Kantamanto, Accra, Ghana. The inputs to the market might include transportation infrastructure to bring clothing to the market, storage facilities to keep clothing dry and secure, and marketing materials to promote the market to potential buyers. The processes involved in SHC trading might include sorting clothing by quality, sizing, and style, and distributing it to different vendors within the market. The outputs might include sold clothing, unsold clothing that is recycled or donated, and waste such as damaged or soiled clothing. Feedback loops might occur if the quality of the clothing inputs improves, leading to more efficient sorting and distribution processes, which in turn can reduce waste output. Finally, the outcomes of the market might include economic benefits for vendors and buyers, social benefits for consumers who can access affordable clothing, and potential environmental impacts such as waste generation and carbon emissions from transportation.

2.17 Summary of review

The literature review focused on Second-Hand Clothing (SHC) waste management and its implication for environmental sustainability, with a specific emphasis on Ghana. The review covered several themes such as the history and context of the second-hand clothing trade, environmental impacts of SHC waste management, current waste management practices, factors influencing waste management, economic and social implications, government and non-governmental efforts, challenges and opportunities for sustainable SHC waste management, theoretical frameworks, and an empirical review.

The history and context of the second-hand clothing trade in Ghana showed that it has been a significant economic activity for several decades, providing affordable clothing to low-income individuals. However, it has also led to negative environmental impacts such as pollution, waste, and the displacement of local textile industries. Current SHC waste management practices in Ghana revealed that the majority of SHC is disposed of through informal channels, with inadequate infrastructure and limited government intervention.

Factors influencing SHC waste management in Ghana include cultural and socioeconomic factors, lack of awareness of environmental impacts, and inadequate waste management policies. The economic and social implications of SHC waste management were found to be both positive and negative, with economic benefits for traders but negative effects on the textile industry and employment.

The review also discussed government and non-governmental efforts to address SHC waste management in Ghana, including policies, regulations, and initiatives such as the National Sanitation Day and the Green Ghana Project. Challenges and opportunities for sustainable SHC waste management in Ghana were explored, with the circular economy and sustainable consumption and production frameworks identified as potential solutions.

Theoretical frameworks such as the waste hierarchy, circular economy, and sustainable consumption and production were also discussed in relation to SHC waste management. Finally, the empirical review highlighted the need for further research on SHC waste management practices and their impacts on the environment and local communities in Ghana.

Overall, the literature review underscores the importance of addressing SHC waste management in Ghana and the need for sustainable solutions that take into account the economic, social, and environmental aspects of the issue.



CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter addresses the methodology adopted for this study. It discusses the following in detail; research design, population, sample and sampling technique, method for data collection, designing and piloting the instrument, data analysis, and ethical considerations.

3.1 Study design

This study employed a cross-sectional design using a qualitative approach. A cross-sectional design is a research method used to collect data from a population at a specific point in time. In this type of study, researchers gather information from participants or subjects at a single, defined time period, without following them over an extended period. The primary goal is to obtain a snapshot or cross-section of the population's characteristics, behaviours, or conditions at that particular moment. A qualitative approach aims at being subjective in the description of experience as well as giving meaning to these life experiences. Qualitative research uses 'non-interfering' data-gathering procedures to explore the usual movement of events and methods and how participants perceive them. People, their actions, attitudes, perceptions, and events can be described and explored using this tool.

3.2 Study location

The study was conducted at the Kantamanto market in the Greater Accra Region. The Kantamanto market stretches from the Okai Kwei Road to the Accra railway station and closed to the Makola market.

3.3 Target population

The study population is made up of all second-hand clothing dealers who are “bale cutters” at the Kantamanto Market. "Bale-Cutter" refers to second-hand dealers who serve as the primary importers of second-hand clothing, supplying other local dealers in the buying and selling of these items.

3.4 Inclusion and exclusion criteria

3.4.1 Inclusion Criteria

Participants included in the study were as follows:

1. Second-hand dealers who are bale cutter
2. Aged 18 years and over
3. Willingness and consent to participate in the study

3.4.2 Exclusion Criteria

Participants who were not part of the study were:

1. Any bale cutter who was not in a second-hand clothing
2. Respondents who are less than 18 years old
3. Participants who declined consent

3.5 Sample and sampling procedure

3.5.1 Sample size

Thirty (30) second-hand clothing bale cutters were selected from the total population of second-hand clothing bale-cutters as sample for the study. The chosen sample size is affected by the study's phenomenological nature, which typically requires 5-30 participants as stated by Sauro (2015). However, only 27 participants were used for the

study resulting from saturation of responses; which is sufficient data to identify emerging themes.

3.5.2 *Sampling procedure*

The purposive sampling technique was used in the selection of respondents, specifically the snowball technique. A purposive sampling procedure chooses a particular population based on its features and the specific objectives of the study (Crossman, 2018). The snowball technique allowed the researcher to find a few individuals who import, buy, and sell second-hand clothing and asked them to propose others who met the criteria. The researcher used this method until he obtained all 30 participants.

3.6 **Data collection method**

3.6.1 *Instrument for Data Collection*

A semi-structured interview guide designed by the researcher was used for data collection. This is because it allowed the researcher to probe for additional information, to ensure that the answering of questions served its intended purpose, and it helped in clarifying questions and responses (WHO, 2008). The instrument had five sections: Section A (Demographic Characteristics), Section B (Reasons for choice of waste management practices), Section C (Awareness of implications of Waste management Practices), Section D (Challenges Faced by Bailleurs), and Section E (Implications on Trading Activities).

3.6.2 *Pre-test*

The pre-testing of the interview guide was conducted at the second-hand clothing section of the Madina market, where we have dealers in second-hand clothing. This location was chosen because they shared the same qualities as their counterparts in the Kantamanto

market. Five (5) dealers were used in the pilot study. The pre-test was conducted to assess and refine the research interview guide, before the main study. It serves to identify and rectify potential issues with clarity, comprehension, and appropriateness of questions, ensuring that my data collection tool is effective and would yield reliable results. Additionally, the pre-test aided in evaluating the feasibility of the research design, sampling strategy, and logistics, which allowed the researcher to make necessary adjustments for a more efficient and accurate data collection process.

3.6.3 Ethical consideration

Saunders et al. (2009) state that ethical considerations are integral to academic research, and Mertens and Ginsberg (2009) emphasise the need for strong ethical guidelines in research. Connelly (2014) further notes that every research project must adhere to ethical principles to ensure research rigor. Ethical clearance was sought from the ethical committee of the College of Basic and Applied Sciences (ECBAS). This study adhered to ethical principles by obtaining permission from relevant institutions, obtaining informed consent from participants, ensuring data safety and confidentiality, and allowing voluntary participation with the option to decline at any time. To enforce these ethical guidelines, the interview guide and data will be password protected and only accessible to the researcher.

3.6.4 Procedure for data collection

An introductory letter was taken from the Department of Family and Consumer Sciences to the leaders of Kantamanto Market (i.e., Leaders of the second-hand clothing sections of the market). Two Research Assistants who can speak Twi were trained to help with data collection. These research assistants were given prior training to ensure that they understood and asked about the items in the data collection instrument in the same way.

The respondents were approached and briefed about the research. Those who agreed to

participate were interviewed, and they were the ones that were trained for the data collection. Data were collected between 9:00 am and 3:00 pm each day of data collection, and section last between ten to twenty minutes for three consecutive market days. The chosen time was because, from a cursory observation, the Kantamanto market becomes very busy in the early hours between 5:00am and 9:00am of the day. By 9:00am, the market becomes less busy and thus, suitable to engage respondents, and by 3:00pm, they started closing up their shops.

3.7 Data analysis

Data collected were subsequently transcribed into different themes and sub-themes. Categories were then created based on these themes. The researcher used thematic analysis to interpret the data, which involves the process of distinguishing and interpreting verbal or behavioural data. To ensure the anonymity of the participants, they were assigned quotations, and the bale cutters were coded as PBC 1 to PBC27, where PBC stands for Participating Bale Cutter. Thematic analysis was appropriate for this qualitative study and for interpreting the interview data. Hence, emerging main themes and secondary themes were, Second-hand Clothing Disposal Practices (waste consideration, clothing disposal practices), Other Forms of Waste from Imported Bales, Awareness of Waste management Practices (remodelling, land-filling, mending/patching), Implications of Clothing Disposal Practices, Reasons for Choosing Clothing Disposal Practices, Effects of SHC Dealers' Waste management Practices, Challenges Associated with Waste management Practices, Implication of Challenges on Trading Activities, as well as, Role of Government/Stakeholders as Support. The researcher analysed the meanings and relationships of the words and concepts within the interview data. In Chapter 4, findings and presentation of the results are presented and explained.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

This chapter presents the results and discussions of the data received from waste management practices of second-hand clothing bale-cutters in the Accra metropolis. The results were analysed according to themes and sub-themes emerging from the study. The chapter first presents the demographics of participants in the study, reasons for the choice of waste management practices used by second-clothing dealers, awareness of implications of waste management practices used by second-clothing dealers, challenges associated with waste management practices used by second-clothing dealers, and the implications of challenges on trading activities in the Kantamanto market.

4.1 Demographic characteristics of participants

The provided demographic characteristics of the participants offer valuable insights into the topic of "Second-Hand Clothing Waste management in the Accra Metropolis; its Implications for Environmental Sustainability." These characteristics include gender, age, level of education, years in business, and the category of clothing.

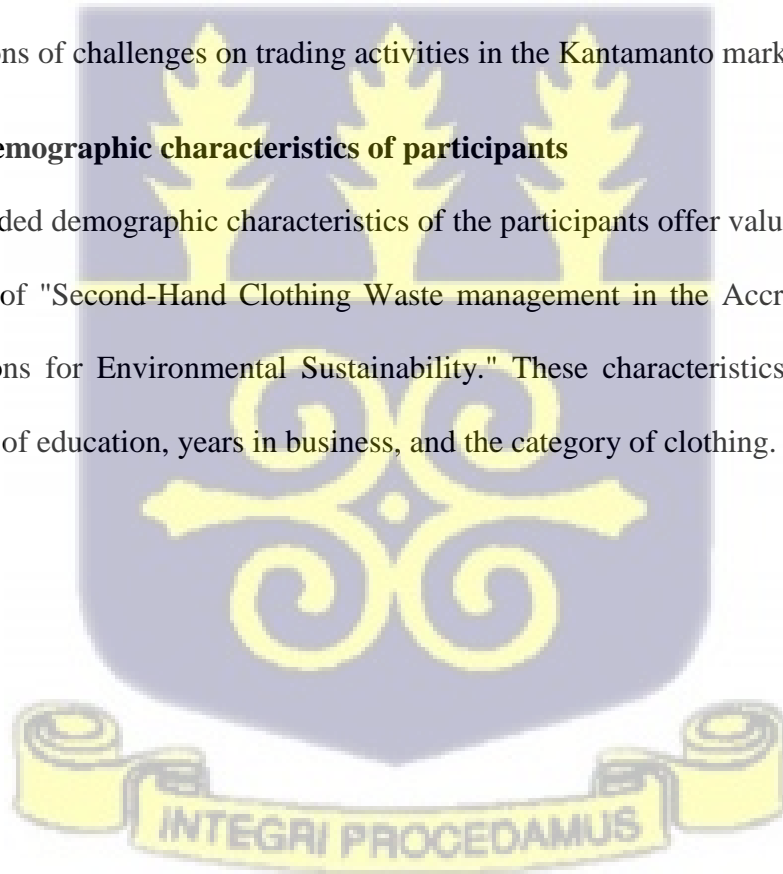


Table 4.1: Demographic Characteristics of Participants

GENDER	FREQUENCY
Male	11
Female	16
AGE	FREQUENCY
29 – 35	6
36 – 45	8
46 – 55	8
56 years and above	5
LEVEL OF EDUCATION	FREQUENCY
NONE	4
PRIMARY	2
FORM 4	6
O' LEVEL	2
JSS/JHS	5
SSS/SHS	8
YEARS IN BUSINESS	FREQUENCY
1 – 5	4
6 – 10	5
11 – 15	5
16 – 20	5
Above 20 years	8
CATEGORY OF CLOTHING	FREQUENCY
Under Garments	10
Outer Garments	12
Household Linen	3
Accessories (Under Hosiery)	2
Total (n = 27)	

Gender of Participants

The majority of participants were female (16) compared to male (11). Gender plays a significant role in consumer behaviour, including clothing choices and waste management habits. Research suggests that women tend to engage more in clothing consumption and waste management activities than men (Thomas & Sharp, 2013). Therefore, the higher number of female participants could indicate a greater interest or involvement in second-hand clothing waste management issues. Women entrepreneurs are increasingly venturing into trading as a means of diversifying their income streams and gaining financial independence. This entrepreneurial spirit has led to the growth of female-led trading businesses and investment firms.

Age of Participants

Participants fell within the following age brackets; 29-35 (6), 36-45 (8), 46-55 (8), and 56 years and above (5). Age can influence attitudes, behaviours, and preferences regarding clothing and sustainability. Younger individuals may be more inclined to adopt sustainable practices, such as considering proper means of disposing of second-hand clothing, due to their environmental consciousness (Fernandez-Solis et al., 2019). Older individuals, on the other hand, might have different waste management patterns influenced by cultural or economic factors. The distribution of participants across different age groups indicates a diverse range of perspectives on the issue.

Participants' Level of Education

The educational background information of the participants could influence their responses as far as second-hand clothing is concerned. The responses revealed that most of the participants had completed SSS/SHS (8), with some participants having O' Level certificate (6), Form '4' certificate (6), primary (2), and JSS/JHS (5). However, four (4) of the participants had no formal education. Education can influence awareness and

knowledge of environmental sustainability issues. Research suggests that higher levels of education are associated with greater environmental awareness and pro-environmental behaviours (Sharma et al., 2019). Participants with higher levels of education might exhibit a greater understanding of the environmental implications of second-hand clothing waste management.

Years in Business

Participants' years in business ranged from 1-5 (4), 6-10 (5), 11-15 (5), 16-20 (5), and above 20 years (8). Number of years in business can provide insights into the experience and expertise of participants in the clothing industry. Those with a greater number of years in business may have a deeper understanding of the challenges and opportunities associated with second-hand clothing waste management.

Category of Clothing

The category of clothing sold by participants included undergarments (10), outer garments (12), household linen (3), and accessories (2). The specific category of clothing was relevant as different items have varying waste management challenges and environmental impacts. For example, undergarments are typically not accepted for donation or resale due to hygiene reasons, which can contribute to increased waste generation (Fletcher, 2014). Outer garments and household linen, on the other hand, are more likely to be resold or donated. Understanding the waste management patterns within different clothing categories helps identify areas where interventions for waste reduction can be focused.

The demographic characteristics of the participants provide a diverse representation of different perspectives and experiences related to second-hand clothing waste management. By considering these characteristics, policymakers, researchers, and

organisations can tailor interventions and strategies to address the specific needs and challenges of different demographic groups, thereby enhancing environmental sustainability in the Accra Metropolis.

4.2 Second-hand clothing waste management practices

Waste Consideration

When referring to certain objects or materials as "waste," the description generally pertains to items that have become unusable or have reached a state where they cannot be repaired by humans, (Smith, 2018). Waste can take various forms, including broken or damaged items, expired or spoiled food, discarded packaging, or other materials that no longer serve their intended purpose (Jones, 2020). When participants were asked about what they consider "waste" as far as second-hand clothing is concerned, some responses given were, as follows:

"If I will consider any of the clothes to be waste means it has been stained. Or, maybe it is torn. A side of it is pulled. That is when you say the dress is "Awule" or waste, but besides, if it has not been stained or it is torn, we have someone who comes for them at lower prices and sells them out to people who use them to clean their machines" (PBC 2).

"The waste is the one that we call down goods. We do not truly consider it to be waste because we have customers that come and buy it. Therefore, though it is waste, it has its own advantage so difficult to classify it as waste. These customers buy them and resell them. But then, we have those we throw away because nothing can be done about it" (PBC 25).

"Those that are torn and not nice, we throw them away because no one can buy them and some are not nice at all, with those they are taken to villages so you

have to reduce the price. Like the ones I have here as waste is Gh¢5 but if it is still there and no one is buying I would reduce it to like Gh¢1.50. If I get 100 pieces of these then it is Gh¢150. Yes, so basically, we sell the nice ones and those that are not nice go for lower prices. The torn ones without repairs are taken out” (PBC 10).

“It depends on the nature of the goods. We usually dispose of them but even with that, I cannot say we dispose of everything because we have people we call “Junkies” who come around to pick them up. These are people who, for instance, have mental problems resulting from substance abuse. That is what they also live on” (PBC 15).

“With the goods, we take them the first, second, and third time. We used to take them only the first and second time but now when things come, it does not really go well, so we do first, second, and third. Therefore, I will personally say the waste is the third selection for me. Meaning, they are useless and nothing can be done about it. They are not good we throw them away. Yes, it is not good it is waste” (PBC 8).

Therefore, the main finding deduced from the information provided by the respondents is that individuals in the study define "waste" in the context of second-hand clothing based on criteria such as staining, tearing, or overall condition. Participants expressed different perspectives on what constitutes waste, with some items being discarded, while others are considered valuable and sold to specific customers, like those who resell or use them for cleaning machines. Additionally, the information highlights the complexity in categorising items as waste, as some discarded items are still picked up by individuals

referred to as "Junkies" for various purposes, revealing a nuanced understanding of waste within the second-hand clothing market.

However, some participants stated otherwise;

“Since I started, I have not seen any waste products in second-hand clothing. However, maybe the clothes being brought from overseas are not well baled like how they ought to be; instead of separating the waste materials from the actual clothing, they instead put everything together and bring them. Therefore, when we are about to cut, we realise some are waste, that is, beyond repairs, so we have option other than to throw them away.” (PBC 1).

“When we get the full bale. There are three different things inside the bale. First selection, second selection, and the rejected ones. If I may explain, the rejected ones are the ones that nobody wants to buy. Then, in addition, selection may have store rejects in them. The store rejects mean, the ones that nobody has worn. And the second one is that we see that somebody can see it and it is suitable for the person. Therefore, you will hardly see waste, especially for me that I deal in trousers. I am confident to say it depends on your goods because me I do not see waste. Everything is important to me and I try to make money from any of the goods by changing it” (PBC 26).

“Oh, I haven't seen anything like that before. And I've done the work for long. Today, isn't the time I'm starting. You understand? So automatically I know if the one I selected is good. If it isn't good too, I know it isn't, so I wouldn't go in for it. And the second-hand goods, if the bale is good you would know” (PBC 21)

“With the foreign things you can't say something is a waste because the one you will call waste is someone's selection. Foreign items are called waste only when

the person does not like them and wants to get rid of it. There's nothing like waste" (PBC 17).

The key findings among these participants include concerns about the sorting and baling process during overseas shipment, where the mixing of waste materials with usable clothing leads to some items being irreparably damaged. The categorisation of clothing within bales is explained, distinguishing between first and second selections and rejected items, with an emphasis on minimising waste. The significance of experience and expertise in selecting high-quality second-hand items is underscored, suggesting that individuals with extensive experience can effectively reduce the likelihood of choosing items that would become waste. The participant bale-cutter seventeen, challenges the conventional notion of waste in foreign second-hand items, asserting that the waste classification is subjective and dependent on individual preferences.

The results reflect the complexity and subjectivity surrounding the categorisation and consideration of what waste is in the second-hand clothing industry. They highlight the diverse perspectives and practices within the sector, where waste is perceived differently based on factors such as quality, demand, repairability, and individual entrepreneurial approaches.

Some participants in the study considered what waste is in second-hand clothing based on specific conditions, such as stains or tears. These conditions render the clothing unusable or unattractive to potential buyers, leading to them being classified as waste (PBC 2, PBC 10). Another participant mentioned that waste refers to clothing that cannot be sold due to irreparable damage (PBC 25). These align with the notion of waste as something that no longer serves its original purpose.

Despite considering certain clothing items as waste, participants noted that there is still a market for them at lower prices. These items may be sold to customers who use them for purposes other than wearing, such as cleaning or repurposing (PBC 2).

This finding indicates that even though some items may be considered waste by some, they still hold value for others, contributing to the circular economy concept of extending the lifespan of products (Rizos et al., 2016).

The results reflect different approaches to dealing with waste in second-hand clothing. Some participants stated that they throw away items that cannot be repaired or sold (PBC 10, PBC 15). However, others mentioned that they have individuals known as "Junkies" or people with substance abuse issues who collect and make use of discarded clothing (PBC 15). This highlights the informal sector's role in waste management and how discarded items can have alternative uses, contributing to livelihoods or social benefits (Morris et al., 2018). Meanwhile, a few participants expressed that they do not consider any clothing as waste since they believe there is value in every item. They mentioned efforts to extract value from rejected or damaged items by altering them or finding alternative uses (PBC 1, PBC 26). This aligns with the principles of waste minimisation and resource optimisation by maximising the utilisation of available resources (Bocken et al., 2016).

Clothing Waste management Practices

The effective management of clothing waste, a frequently disregarded facet of our consumer culture, holds considerable environmental and social consequences. The fashion industry's accelerated production and consumption patterns have exacerbated a growing waste issue, resulting in a substantial influx of clothing into open surroundings, posing significant environmental challenges. These practices encompass the actions taken by individuals, businesses, and societies to manage and handle clothing that is no

longer wanted or usable. Clothing waste management practices encompass a wide range of actions taken by individuals, businesses, and societies to manage and handle clothing that is no longer wanted or usable. These practices have significant implications for waste generation, environmental impact, and sustainability. Participants were asked about the kind of clothing waste management practices they adopted. The responses are as follows;

“When we close, we sweep and gather it then some people come for it and put them in the bigger dustbins for cars to come for them. So, they put bigger dustbins over there then we have to tie the waste in sacks and put them there” (PBC 7).

“Please it depends. We usually dispose of them by putting them here so sweepers around will sweep them and take them to the big dustbin but even with that, I cannot say we dispose of everything because some people use it, we call them “Junkies”. That is what they also live on (PBC 27).

“When you take clothes and they are not good you have to throw them away. Some have stains and the stains won’t go off even after washing, with that you have to throw them away. You have to pack them and make sure you tie it up then those who sweep here we pay them, they collect them” (PBC 10).

“We have rubbish collector people around so we gather it for them to come for it. They also give it to the waste management vehicle. They add it to the general waste around this place but we do not know where they take it” (PBC 18).

In contrast, some participants have other means of dealing with second-hand clothing waste;

“I don’t throw them away. I keep them under the table. I know someone would come and buy them to clean their machine. I hope you understand. The printing press people come to buy it to clean their machines. So, I don’t throw any away at all” (PBC 13).

“People come for them. They may wash and sell or wear them. There are dustbins that we dump them in. However, because people recycle them too, I sell them or give them out to them depending on the situation. These people are here every day because it’s a business for them and that’s what they depend on” (PBC 12).

“I do not dump or throw what I see as waste away because I sell mine to companies who use that to clean their machines and other things. The rest is not my business. Whatever they do afterward is not my concern because it has left my domain” (PBC 19).

The results above indicate a lack of consistent and proper waste management practices for second-hand clothing among the participants. The responses highlight a range of approaches, including collecting and tying up the waste for municipal sweepers or waste collectors to dispose of (PBC 7, PBC 10, PBC 18). However, it is notable that some participants mentioned the presence of individuals known as "Junkies" who collect and utilise the discarded clothing (PBC 27).

These findings suggest a lack of standardised and regulated waste management methods for second-hand clothing waste among the participants. Instead, arrangements seem to be in place, such as relying on municipal sweepers or waste collectors who may dispose of the clothing in general waste streams (PBC 7, PBC 18). This lack of proper waste management practices raises concerns regarding the potential environmental impacts and missed opportunities for more sustainable waste management strategies.

Moreover, some participants mentioned alternative channels for managing second-hand clothing waste. For example, one participant mentioned selling the waste to printing press companies for machine cleaning purposes (PBC 13), while others mentioned selling or giving the waste to individuals or companies involved in recycling or resale activities (PBC 12, PBC 19). These alternative practices highlight the potential for circular economy approaches, where waste materials can be repurposed and given new life.

The absence of standardised waste management practices in the second-hand clothing sector is not uncommon, particularly in regions with limited waste management

infrastructure or informal economies. Informal waste management, such as the involvement of "Junkie" or individuals dependent on discarded clothing, is often observed in developing countries (Morris et al., 2018). However, it is essential to recognise the need for appropriate waste management practices to mitigate potential environmental and health risks associated with improper waste management.

A study conducted by Niinimäki et al., (2021), suggests that establishing proper waste management practices and improving waste management in the textile and clothing sector are crucial for achieving sustainability goals. Efforts should be made to develop infrastructure for the separate collection and recycling of textile waste, promote extended producer responsibility, and enhance consumer awareness regarding proper waste management options. Additionally, collaboration between different stakeholders, including government, industry, and civil society, is vital to create a more comprehensive and sustainable waste management system (Farrant et al., 2018).

4.3 Other forms of waste from imported bales

Not all items within a bale are suitable for the local market or climate. Cultural differences, sizing disparities, and varying fashion trends can render a significant portion of the imported clothing unwanted or unusable. Consequently, these items are often discarded or remain unsold, adding to the waste generated from imported bales. Participants were asked to indicate other types or forms of waste other than actual clothing from imported bales. Some responses include;

“Ooo, the metals used to tie or safeguard the bales or clothes for instance can be termed as waste. But these things are not discarded. There are people who go round to unlock or cut these metals for us and keep the metals for their own use.

That's what they use for the hangers and other things they think it will be useful for. So, me, I will not call it waste unless you think otherwise" (PBC 3).

"You see the plastics used to wrap or hold the clothes. That's what they have used for the basket. They use it for so many things. The normal fan you know something like mat. I mean so many things. The point is, if you do not look sharp and you want to call something waste then it goes against you because, things are difficult now so you need to find a way to make money from all these things" (PBC14).

"I can say, the rubbers, sacks, papers, metals and plastics used to wrap, among others. But, some of them like the metal and plastics for instance, are used for dustbins, fan, baskets, hangers, and a whole lot. But the ones that cannot be used are dumped" (PBC 22).

"For me, I will say any other thing that comes with the second-hand clothes that is not the clothe itself. I do not know if you get me. It is the clothes we want so anything that comes with it is a waste. Something like, the sacks, the metals used to hold it, the plastics holders" (PBC 9).

The results provided by the participants shows the additional forms of waste associated with imported bales of second-hand clothing. The participants mentioned the metals used to tie or safeguard the bales, indicating that these materials are not considered waste as they are collected by individuals who unlock or cut them for personal use. These metals are repurposed for making hangers and other useful items. This aligns with the concept of upcycling, which involves transforming waste materials into new products of higher value or utility (Bakker et al., 2014). By repurposing the metals, individuals reduce waste and contribute to resource conservation. These perspectives highlight the reuse and

repurposing of certain materials such as metals and plastics, which are often discarded as waste but are utilised by individuals for various purposes.

Similarly, the respondents highlighted the use of plastics used to wrap or hold the clothes. They mentioned how these plastics are repurposed for making baskets, fans, mats, and other items. This practice demonstrates the potential for creative reuse of materials that would otherwise be discarded. It also reflects the concept of circular economy, where materials are kept in use for as long as possible through recycling, upcycling, and repurposing (Geissdoerfer et al., 2017). By repurposing the plastics, individuals not only reduce waste but also find economic opportunities by creating products for sale. However, while some materials are successfully repurposed and reused, others still end up as waste. This indicates the complex nature of waste associated with imported bales. This finding indicates that, what may appear as waste to outsiders holds value for second-hand clothing dealers (bale cutters). They view everything within the bale, including packaging materials, as valuable resources. Aluminium wires find a use for support, while plastics were repurposed for basket weaving.

4.4 Awareness of waste management practices

Awareness of proper waste management practices is a fundamental aspect of sustainable waste management within the clothing industry, particularly among clothing dealers involved in the second-hand clothing sector. These dealers play a critical role in the lifecycle of clothing, as they handle garments that are no longer wanted or usable by their original owners. Understanding the level of awareness and knowledge among clothing dealers regarding appropriate waste management practices is essential for developing effective strategies to minimise the environmental impact of clothing waste.

Recycle/Remodelling

Clothing recycling involves transforming textiles into new materials or products. Depending on the textile composition, recycling processes can include mechanical recycling (shredding and respinning fibres), chemical recycling (dissolving and regenerating fibres), or even upcycling (transforming garments into new designs or products). Recycling offers a means of diverting clothing from landfills and reducing the demand for virgin materials (Farrant et al., 2018). Responses indicating participants' awareness of recycling;

"I cut some and give it to the tailor to add elastic to make new ones, I believe that is recycling or am I lying? Because I see it as having something and using it to do another thing instead of throwing it away" (PBC 22).

"Oh yeah. Therefore, the metal that holds the bale together is usually welded and used for other things, especially metallic hangars. The rubber for the bale is used for fans and laundry baskets" (PBC 15).

"So, with the torn ones, an instance where you don't sell them and we want people to recycle them. As in, you they change it into something meaningful?" (PBC 13).

"Maybe something you have thrown away or you think it is not good and someone comes for it and repairs it and remodels it into something new for you" (PBC 2)

"Yes, I know of recycling and I will be happy to recycle because of the price of the bale. A bale is about ₵5000 so I won't make any money if I throw the waste away. So here, the things that are thrown away like the singlets, you can't alter them; it is already spoilt. Alternating those ones is not possible for us. For instance, sometimes some people collect them for pillows like they put these in their cases and they sew them. Like someone just asked for. So, it can be used for a lot of things but to do it yourself is the problem." (PBC 5).

Meanwhile, some were not aware of recycling;

“Recycling, I haven’t heard of recycling. What is that? Some of these things are not normal to us. I may know it but not as the way you said it” (PBC 14).”

“What, recycling? No, no, no. I do not know anything about it please. Maybe unless you educate me. I will be glad. Every day we learn so today can be another learning process or day for me. Hahahahaa” (PBC 12).

The results reveal a varied level of awareness among participants regarding recycling practices within the second-hand clothing sector. While some participants demonstrate an understanding of recycling and its potential for repurposing discarded garments, others display a lack of knowledge or awareness of recycling concepts. These responses highlight the need for increased education and awareness regarding recycling practices among clothing dealers.

The results again suggest that while some participants are familiar with recycling and actively engage in practices that align with its principles, others require further information and education on the topic. This indicates a potential gap in knowledge and awareness of sustainable waste management practices within the second-hand clothing sector.

A study by Fletcher, (2017), supports the significance of promoting recycling practices within the fashion industry. He stipulated that recycling plays a vital role in the circular economy by extending the lifespan of clothing items, reducing the demand for new production, and minimising environmental harm. Through recycling, valuable resources can be recovered, reducing the reliance on raw materials and decreasing the environmental footprint of the fashion industry (Bakker et al., 2014). The varying responses can be attributed to the educational differences among participants

Land-filling

One common method of disposing of clothing waste is land-filling, where garments are discarded and end up in landfill sites (Fisher & Rafferty, 2018). Land-filling, however, poses significant environmental and social challenges due to its negative impacts on the ecosystem, natural resources, and human health. Meanwhile, awareness and understanding of land-filling as a waste management method are crucial for clothing dealers who handle large volumes of second-hand garments. The awareness and knowledge of clothing dealers regarding land-filling can significantly impact their waste management decisions and contribute to sustainable waste management in the fashion industry. Investigating the level of awareness among clothing dealers regarding land-filling provides valuable insights into their perspectives, practices, and potential areas for improvement in waste management strategies. Some responses include;

“No please; I do not know about that. I may have heard but I do not specifically know more about it. Maybe because it is not common” (PBC 13).

“No, I do not know about it. Where I have reached now, it is all about coming to the market and dealing with my business here. Land-filling is not something I know please” (PBC 21).

“Land-filling, I know people do it or rubbish can be disposed of that way but with regards to clothing, I do not believe so. We all bury some form of rubbish in the home but not clothing” (PBC 17).

“Oh, how can you bury rubbish, it will not decompose, please. That’s what I think about land-filling. You tell me more. Is it right to do that? Oh, tell me, I want to know please because it doesn’t sit right with me” (PBC 26).

“Please no. I have knowledge about that please. Especially here at the market where no one will do that not even try to burn. We pay people to sweep” (PBC 9)

“Well, land-filling is not a common thing in the market here so I do not have anything more on that. Over here, we are only allowed to gather or leave it in front of us then those we pay to sweep will come and sweep when time is right up” (PBC 15).

The responses provided by the participants indicate a lack of awareness and knowledge regarding land-filling as a waste management method among clothing dealers. Many of the participants expressed unfamiliarity with the concept of land-filling, associating it more with general household waste rather than specifically related to clothing. Some participants even expressed skepticism about the effectiveness or appropriateness of land-filling for clothing waste. These responses suggest a limited understanding of sustainable waste management practices in the fashion industry.

The lack of awareness regarding land-filling among clothing dealers highlights the need for improved education and awareness programs on sustainable waste management. It is crucial to inform clothing dealers about the potential environmental impacts of improper waste management methods and to promote more sustainable alternatives such as recycling, reusing, and upcycling. Proper waste management, including landfilling as a last resort, is essential to address the growing environmental concerns associated with the fashion industry. Landfills may not an ideal solution for textile waste due to the long decomposition time of synthetic fibres and the potential release of harmful chemicals during decomposition (Ellen MacArthur Foundation, 2017). Instead, practices such as recycling and upcycling can help reduce waste generation and conserve resources.

The findings confirm the assertions of Fletcher, (2017) who indicated that the concept of circularity encourages the reuse, recycling, and repurposing of materials, including clothing, to create a closed-loop system. This approach aims to minimise waste generation and reduce the reliance on landfills.

Mending/Patching

In the ever-evolving world of fashion and clothing retail, the concept of mending or patching garments has gained significant awareness among clothing dealers. Mending and patching refer to the practice of repairing damaged or worn-out clothing items instead of discarding them. Participants' views on mending/patching included the following:

“Patching? Absolutely! We make contacts with skilled tailors who ensure our goods if not in good shape are patched up and good as new” So, the jean trousers for instance, when we cut the leg offs, we do not throw them away, we join them together for shorts or trousers for babies, toddlers, infants, among others and we call them “enyanka behye”. It depends on the individual dealer” (PBC 19).

“Me, I advocate for making use of opportunities to make money. We have an in-house mending service that can expertly mend that hole for you. Your sweater will be back in your wardrobe in no time.” (PBC 14).

“Yes, indeed, we have a curated collection of garments featuring visible mending. These unique pieces celebrate the art of repair and add a touch of individuality to your wardrobe. Because in our culture, we have a lot of people who enjoy patched clothing as a form of art so we take advantage to make money rather than totally discard it” (PBC 7)

“Yes please, we mend and patch some of the goods when the goods arrive. We have partnered with skilled artisans who specialise in restoring and preserving vintage garments. We just take the goods there and they connect us with the right experts to give it the care it deserves” (PBC 22).

“As for patching, you need not worry, over the years, I have gained experience in stain removal and fabric restoration. If the good is not good, I do my best to bring it back to its original condition before I make the final decision to say a good is a waste” (PBC 20).

“Yes, please. Looking at the brasiers, for instance, I used normal thread to fix the hooks and other parts if I could. Therefore, I think, it is the most common way to save my goods than throwing them away. But, some of them are beyond repairs and this is what I said earlier as waste.” (PBC 4).

The responses provided by the participants show their positive views and practices related to mending and patching within the clothing industry. The participants' statements reflect recognition of the value of repair and the potential economic opportunities it presents. These responses also demonstrate an appreciation for the artistic aspects of visible mending and the ability to transform damaged garments into unique pieces.

Several participants emphasised the importance of skilled tailors and artisans in the mending process. They mentioned forming partnerships or having in-house mending services to ensure that damaged items are expertly repaired. This indicates a proactive approach to preserving the quality and longevity of garments, rather than discarding them prematurely. The participants recognised the financial benefits of mending, as it allows them to offer restored garments for sale and meet the demands of customers who appreciate patched clothing.

The participants' statements align with the principles of sustainable fashion and the circular economy (Fletcher & Tham, 2018). Repairing and mending garments contribute to reducing waste and extending the lifespan of clothing items, which are key objectives of sustainable fashion practices. By emphasising the importance of repair and partnering with skilled professionals, clothing dealers can foster a culture of conscious consumption and promote the value of well-cared-for garments.

The concept of visible mending mentioned by one participant adds an artistic and creative dimension to the practice of patching. Visible mending involves using decorative techniques to repair and embellish damaged garments, turning the act of repair into a visible and celebrated feature (Thompson, 2018). This approach not only extends the life of the garment but also adds unique character and individuality. Visible mending aligns with the growing trend of consumers seeking personalised and one-of-a-kind clothing items, which can contribute to reduced demand for new, mass-produced garments.

The participants' positive attitudes towards mending and patching practices within the clothing industry demonstrate the potential for wider adoption of these sustainable strategies. By fostering a culture of repair, clothing dealers can actively contribute to reducing textile waste, conserving resources, and promoting a more sustainable and responsible fashion industry. This is consistent with the work of Brown & Kornberger, (2017) on sustainable fashion and the circular economy which supports the significance of mending and patching as essential practices. Repairing garments has been recognised as an effective strategy for extending the life cycle of clothing items and reducing their environmental impact. The concept of "care ethics" within sustainable fashion emphasises the importance of nurturing and maintaining garments through repair and maintenance, rather than constantly pursuing new acquisitions.

Furthermore, the resurgence of visible mending as an art form has gained attention in recent years (Black, 2019). It challenges the perception of damage as a reason for waste management and encourages individuals to embrace imperfections as part of a garment's history and character. Visible mending promotes creativity, craftsmanship, and personal expression within the context of sustainability.

4.5 Implications of clothing disposal practices

The waste management of clothing has significant implications for the environment, society, and the economy. Clothing waste management practices, including methods such as land-filling, incineration, and improper dumping, contribute to environmental pollution, resource depletion, and social challenges (Joy et al., 2012). Understanding the implications of these practices is essential for developing effective strategies to mitigate their negative impacts and transition toward a more sustainable fashion industry. Participants gave the following response to indicate their views on the implications of clothing waste management practices;

“When garments end up in a way they are not intended to, they take up valuable space and release harmful pollutants into the soil and water. It is crucial for us to look at this and use proper means to reduce these negative effects” (PBC 8).

“Clothing waste management practices affect the livelihoods of many people. When we throw away usable clothing, we undermine the potential for resale and reuse, which could benefit both the local community and customers looking for affordable options. It is important to recognise the economic and social value of extending the lifespan of garments” (PBC 11).

“As clothing dealers, we need to consider the implications of our waste management practices. The system has led to more consumption and a culture of

improper ways of disposing. Being responsible in disposing off waste clothes will be a good one and I know can contribute to help the fashion industry” (PBC 16).

“I will say a bad waste management practice as far as clothing is concerned contributes to costs and missed opportunities for resource recovery. So, I will say it has bad effects on so many aspects of lives which we forget it will affect us so we ignore if we are doing something bad” (PBC 12).

“One of the implications of improper clothing waste management is the perpetuation of unmanageable consumption patterns. When we throw away garments, we contribute to wastefulness, which promotes the notion that fashion should be disposable. We need to change our mind-set towards a more mindful and responsible approach to clothing” (PBC 22).

The responses above emphasise the environmental, economic, social, and cultural impacts associated with improper clothing waste management. Participants expressed concerns about the environmental consequences of improper clothing waste management. They highlighted that when garments end up in unintended locations such as land-fills; they occupy valuable space and release harmful pollutants into the soil and water. This aligns with the growing recognition of the environmental impact of the fashion industry, particularly its contribution to waste generation and pollution.

In accordance with the findings presented in the Ellen MacArthur Foundation's report titled "A New Textiles Economy: Redesigning Fashion's Future," the fashion industry is a major contributor to environmental degradation. This includes the release of chemicals, water pollution, and greenhouse gas emissions. The report underscores the necessity for enhanced practices in clothing waste management to alleviate these environmental impacts (Ellen MacArthur Foundation, 2017).

The participants acknowledged the economic and social implications of clothing waste management practices. They mentioned that throwing away of usable clothing undermines the potential for resale and reuse, which can benefit both the local community and customers seeking affordable options. This indicates the importance of recognising the economic and social value of extending the lifespan of garments.

Studies have shown that the fashion industry's linear model of "take-make-dispose" contributes to economic inefficiencies and missed opportunities for value creation. The report "Fixing Fashion: Clothing Consumption and Sustainability" by the UK Parliament's Environmental Audit Committee highlights the potential economic benefits of transitioning to a more circular fashion economy, including job creation, reduced resource consumption, and increased resale market value (UK Parliament, Environmental Audit Committee, 2019).

One participant mentioned the cultural implications of clothing waste management practices. They pointed out that the current system in which we live has led to increased consumption and a culture of improper waste management. This aligns with the notion that fast fashion and disposable clothing have influenced consumer behaviours, fostered a throwaway mentality, and perpetuated unmanageable consumption patterns (Rabinowicz and Chinapah, 2014).

Research on consumer behaviour and fashion sustainability supports this view. Studies have found that the increased availability of inexpensive, trendy clothing has contributed to the rise of "throwaway fashion," where garments are worn only a few times before being discarded. The article "Fast Fashion, Sustainability, and the Ethical Appeal of Luxury Brands" by Kozar, Karahan, and Delener (2019), explores the cultural factors

influencing consumers' attitudes toward clothing waste management and highlights the need for a shift toward more mindful and responsible consumption practices.

4.6 Reasons for choosing clothing disposal practices

Factors Influencing Clothing Disposal Practices

The choice of waste management practices among clothing dealers is a complex and multifaceted issue influenced by various factors that shape their decision-making process. These factors include economic considerations, market dynamics, logistical constraints, environmental awareness, and social responsibilities. Hence, understanding the reasons behind these choices is crucial for developing effective strategies to address the challenges associated with clothing waste and promote more sustainable practices in the fashion industry. Some participants stated;

“Sir, like I said. We have people who sweep the market and throw the rubbish on our behalf for which we pay them so I think I just follow the rules here. That is all. If we come and we make rubbish, whatsoever, we just leave them in front of us and they are swept. By the next day, we come and the place is cleaned” (PBC 16).

“Well, I’m not guided by anything. All I know is I have paid so my place must be kept clean. It doesn’t mean I am dirty person but I just follow principle. We have been ordered to pay and we do so and they also use the money well and we all have peace” (PBC 3).

“Oh, I will say we are not in charge of the dirt or “borla” here. We pay the “Kaya-borla” to do so. Like you are seeing here, if I finish the day’s business, whatever I have here as rubbish, I gather and put them here. By the time I come in the morning, the place is clean. So, for me, the rules here guide me” (PBC 21).

“First, I would say the things or the way we carry out our activities here is key in guiding us. Because our leaders have put in place measures to deal with rubbish-related issues.”

“Reason? Hhhmm, I truly do not have any reason, sir. I just follow the normal way of life to do these things and the normal things we do here. Me, I do not sweep. Not even me, we all do not sweep. Labourers we call “Kaya-Borla” do these things so my mind is not even there. All I care about is getting customers to patronise my goods for me because the system is not cool at all” (PBC 20).

The results provided by the participants shed light on the perspectives and reasons for participants waste management practices. These responses highlight a variety of factors that influence their behaviour, including adherence to existing rules and regulations, reliance on hired labourers for waste management, financial considerations, and the desire for a clean and orderly environment.

Some participants mentioned that they follow waste management practices based on the existing rules and regulations set by the market or governing authorities. They pay for the services of sweepers or waste management personnel who are responsible for cleaning the area. This indicates that their actions are guided by the established system and their compliance with it. These findings are consistent with the concept of "compliance-based behaviour" discussed in the environmental psychology literature. According to Vining and Ebreo (2002), individuals often adhere to rules and norms due to the fear of punishment or social disapproval. In the context of waste management, adherence to established rules can help maintain cleanliness and orderliness but may not necessarily reflect a deep understanding of the environmental impact of waste management practices.

Additionally, several participants mentioned that they pay for waste management services, and the responsibility for cleaning the area falls on hired labourers or "Kaya-Borla." Their main concern is ensuring the cleanliness of their own selling spaces, and they trust that the waste will be properly managed by the designated personnel. Financial considerations and the division of labour appear to shape their approach to waste management practices. The role of financial considerations in shaping waste management practices among businesses is supported by the assertions of UNEP (2019) on waste management and economic incentives. The study highlights that businesses may prioritise cost-effectiveness and convenience, often leading to waste management rather than investment in recycling or waste reduction measures. This suggests that the participants' focus on cleanliness and relying on paid services aligns with prevalent practices within the industry.

Again, some participants expressed a lack of awareness regarding the environmental implications of their waste management practices. Their primary concern is attracting customers and conducting their business successfully, while waste management is perceived as someone else's responsibility. They follow "normal" practices without questioning them or considering the environmental impact. This finding underscores the need for increased awareness and education on sustainable waste management practices within the fashion industry. Research on pro-environmental behaviour suggests that individuals are more likely to adopt sustainable practices when they are aware of the associated environmental issues and understand the benefits of alternative actions (Kollmuss & Agyeman, 2002).

The general findings emphasise the importance of targeted interventions, such as raising awareness, providing incentives for sustainable practices, and promoting a sense of responsibility among clothing dealers regarding their waste management practices.

4.7 Effects of waste management practices on SHC dealers

Waste management is a critical aspect of modern society, reflecting on our consumption patterns and the management of materials we no longer need. However, the methods and practices employed for waste management can have significant consequences for the environment, public health, and the overall well-being of communities. Responses given when participants were asked about the environmental, social, and economic effects of their waste management practices included the following:

“I have noticed that when we dispose of clothing improperly, it ends up in a bad way and contributes to so many problems. It is disheartening to think that our actions are contributing to the problems we face” (PBC 13).

“Oh, I can say improper waste management practices among clothing dealers can lead to the contamination of nearby water sources. I have seen cases where dyes and chemicals from discarded garments seep into rivers and streams, posing a threat to fishes in the sea and the other things it may affect. I am confident, we here do not produce that waste because what happens to the waste, we know nothing about it. As in, where it is been sent and all other things and I cannot hide behind the fact that improper waste management is not harmful” (PBC 1).

“When clothing is not disposed of responsibly, it accumulates in our surroundings, creating an unsightly and environmentally damaging mess” (PBC 23).

“By not prioritising recycling, we're missing out on opportunities to conserve valuable resources. It is disheartening to think about the energy, water, and raw materials that go into producing textiles, only for them to end up in the trash.” (PBC 5).

With respect to social and economic effects, the participants had no such effect;

“Social effects, nothing like that here. We are all okay, and ever since I started working here, I have not heard anyone come up with issues related to waste among us. Therefore, for that, nothing more to say” (PBC 24).

“The money we pay for keeping this place clean is peanut. Every week, they come for sweeping money; that is our authorities. It is part of this money they use to pay the “Kaya Borla”; they also use some for us on the street and those of us in the market. Yeah, I hope you get me. No economic effects” (PBC 8).

“Sir you making me laugh, anyone who complains about the money we pay here is a joke. Even if there will be any form of economic effects not related to waste. Maybe the negative impacts of what we do will affect the nation then I may agree.

Moreover, what does the country even do for us as second-hand people? They only increase tariffs at the port which is affecting us so please no economic effect. Let me tell you something, we second-hand dealers contribute most to the growth of this economy. How many people can buy store clothing in Ghana? The majority will come here to get what they can afford. That is why we have the slogan “Aboa Oman” implying it is a contributor to the growth of the nation or it has helped the nation literally. Therefore, sir, nothing like what you asked is so” (PBC 22).

While some participants expressed concern about the negative environmental impacts, others seemed less aware of or concerned about these effects. Additionally, in regard to social and economic effects, the participants did not perceive any significant impact. Several participants acknowledged the environmental consequences of improper clothing waste management practices. They expressed concerns about the contamination of water sources, the accumulation of waste in the surroundings, and the missed opportunity to conserve resources through recycling. These responses highlight a growing awareness of the environmental implications of clothing waste management practices. The participants'

awareness of the contamination of water sources is consistent with a study conducted by Corbin, (2016) which emphasises the risks posed by the release of dyes and chemicals from discarded garments into water bodies.

Interestingly, the participants did not perceive significant social or economic effects related to their waste management practices. They mentioned that waste management and cleanliness were adequately addressed, and the financial contributions they made were not considered burdensome. Additionally, they emphasised the economic role of the second-hand clothing market in providing affordable options to customers and contributing to the national economy. It is important to note that the participants' perceptions may be influenced by their immediate experiences and observations, and may not capture the broader social and economic effects that can arise from waste management practices.

4.8 Challenges associated with waste management practices

Waste management practices within the fashion industry pose significant challenges that need to be addressed to foster sustainability and minimise environmental impacts. Many individuals, including clothing dealers and consumers, may not be fully aware of the impacts of their actions on the environment. Insufficient knowledge about sustainable waste management options and the importance of recycling exacerbates the problem, leading to high volumes of textiles waste. Below, are the responses from participants' points of view concerning challenges associated with the various waste management practices in the market are shown:

“No, as I said earlier, when its 6 pm, after we, the traders, have left, the kaya-borla comes around to sweep and tidy the place. They come around with these

heavy sacks to collect the refuse and tie everything, placing them on a wooden cart to be conveyed outside for the car to pick them up” (PBC 1).

“As I said earlier, those selling the knickers are different from us when a dress is torn, they can give them out to the junkies on the street. When their dresses are torn, they hardly find buyers as a result of this they just leave them. However, with our products unless it completely deteriorates. Machine operators come for our products to clean their machines so in my line of business the waste produced is minimised and the disadvantages are a few” (PBC 10).

“Oh no look on the floor you see the papers on the floor. We pay them on a weekly basis. Do you get me? 3 cedis. They also come here in the evening when most people have left to clean the place and carry the refuse to the refuse dump” (PBC 18).

“Not at all but there are some people like this place, maybe I’m no longer staying in the shop and I left here. They will start calculating it for the number of years I have been away and let the new occupant I entrust the shop into pay before the person can operate there. So that’s some of the challenges” (PBC12).

“Oh, here we don’t have any challenges, the only one is from those who pack the bales. We would want them to get rid of the waste before selling them to us so that it will be easier for us. Most of the things are waste and they are expensive too. We want them to bring only nice things that is our problem.” (PBC 25)

Meanwhile, a participant indicated a regulatory challenge he faced;

“Yeah, that is how it is done. The authorities in this market go around the market on Saturdays for money to tide up the place. With this money, they pay the “kaya Borla” and the security personnel in this market. Therefore, they have a specific

amount they come for every Saturday. They will even pass here very soon to reach for their money holding their books. They go to every table for the money. Therefore, if you do not follow, then you are in trouble, and you will be sanctioned. However, this is not really a problem. The challenge here is that sometimes it may not be your fault to overlook the rules here, circumstances make you fall into certain things you do not plan, hence, it's difficult to accept sanctions for these actions. But you hardly hear or see such things here” (PBC 11)

The responses provided above by the participants show the challenges associated with waste management practices in the clothing market (Kantamanto). Participants mentioned that the responsibility for waste management lies with external cleaners, commonly referred to as "kaya-borla." These cleaners are responsible for sweeping and collecting refuse after the traders have left. While this arrangement helps maintain cleanliness, it can create disconnection between the traders and the actual waste management process. This reliance on external cleaners may hinder the development of a sense of personal responsibility for waste reduction and proper waste management practices among the traders themselves.

Some participants also highlighted that waste production is minimised in their line of business. For example, machine operators come to collect waste for cleaning their machines, reducing the amount of waste generated. This approach can be described as similar concept of waste minimisation and resource recovery, which are key principles of sustainable waste management. Some participants mentioned that they pay a fee for cleaning services, which is used to compensate the “kaya-borla” and other personnel responsible for maintaining cleanliness in the market. While this arrangement ensures regular cleaning, it raises questions about the effectiveness and sustainability of waste management practices solely based on financial contributions. It is important to consider

whether the payment structure encourages proper waste management or simply externalises the responsibility for waste management without addressing the underlying issues.

However, one participant mentioned regulatory challenges related to payment and sanctions imposed by the market authorities. Traders are required to contribute a specific amount of money for cleaning services, and failure to comply may result in sanctions. This highlights the role of regulations in waste management practices. However, the participant also mentioned that circumstances may sometimes lead to noncompliance, which raises questions about the fairness and flexibility of the regulatory framework in addressing individual circumstances.

4.9 Implication of waste management challenges on trading activities

Accra, as one of West Africa's vibrant urban centres, boasts a bustling second-hand clothing market, attracting traders from various backgrounds seeking economic opportunities in a thriving industry. The sector is not without its complexities, as traders confront multifaceted challenges, particularly in waste management practices. These challenges, in turn, influence the dynamics of their trading activities and raise pertinent questions about their environmental footprint within the metropolis. In view of this, participants were asked about the implication of challenges on their trading activities in the clothing market (Kantamanto). Responses include the following:

“If you have goods bought with your hard-earned money and you have been given a space to sell, it is up to you to mess it up and be sacked because there are people waiting for the opportunity to grab your space so this is how we deal with it”
(PBC 7).

“I do not think there are challenges, so we live our normal lives and vary our activities. The day’s activity will determine what you will do or the trend will help you cope and that’s what we’ve been doing for all these years.” (PBC 22).

“My brother, what is there to cope with is the changing trends in purchasing which is currently down but to say any other thing is just me pouring out my frustrations. How can you just increase tariffs at the port and expect citizens to be happy?” (PBC 15).

The findings above reveal insights into traders' perspectives with regards to implications of waste management challenges on trading activities.

The responses show the competitive nature of the trading environment in Accra Metropolis, where traders perceive their trading spaces as valuable assets and are motivated to persevere despite waste management challenges to safeguard their livelihoods for instance, (PBC 7) highlighted the resilience and determination of traders in navigating these challenges, illustrating a collective commitment to maintaining and securing their economic sustenance in the face of adversity. This competitiveness is a well-documented aspect of informal markets (Skinner et al., 2008). Traders often operate in fiercely competitive environments, and the fear of losing their trading spaces drives them to prioritise space retention. However, this intense competition can sometimes lead to unsustainable practices and contribute to environmental issues if waste management is not adequately addressed.

Again, the result demonstrates adaptability to daily market trends and a flexible approach to trading, viewing challenges as part of their routine and adjusting their activities accordingly (PBC 22). The ability to adapt is a valuable trait for entrepreneurs in the informal sector (Mukhopadhyay, 2003). However, it's crucial to recognise that

adaptability, when not coupled with responsible waste management practices, may inadvertently contribute to waste generation and improper waste management practices. This statement emphasises the importance of acknowledging that adaptability while being a valuable trait, can have unintended consequences if not paired with responsible waste management practices. In essence, it suggests that the ability to adapt to changing circumstances or adopt new practices is beneficial, but if this adaptability is not guided by a commitment to responsible waste management, it may unintentionally lead to an increase in waste generation and the adoption of improper waste management practices. In other words, being flexible and responsive to changes is positive, but it should be accompanied by a conscientious approach to waste reduction, recycling, and proper disposal to ensure that adaptability doesn't inadvertently contribute to environmental issues associated with waste.

Conversely, (PBC 15) expresses frustration with external economic factors, such as changing consumer trends and increased tariffs, which are perceived as significantly impacting trading activities. External economic factors can indeed have a substantial influence on trading activities in the informal sector (Castells-Quintana & Royuela, 2012). Economic conditions, including tariffs, can significantly impact traders' profitability and their capacity to cope with challenges. It's essential to note that while external factors are beyond traders' control, unaddressed waste management challenges within the sector can exacerbate environmental problems and potentially lead to regulatory changes in the future.

These responses collectively show the intricate interplay between waste management challenges, the competitive landscape, and traders' adaptability and frustration with external forces. While competitiveness and adaptability are essential traits in the informal

sector, it's vital to consider their potential environmental implications and strive for more sustainable waste management practices within the sector.

4.10 Role of government/stakeholders as support

One specific location where clothing waste has become a prominent concern is the Kantamanto Market in Accra, Ghana. Kantamanto is one of the largest second-hand clothing markets in West Africa, attracting a high volume of used garments from around the world (Ahiekpor, 2020). While the market plays a crucial role in providing affordable clothing options for many Ghanaians, it also faces challenges related to sustainability, waste management, and environmental pollution. To tackle the issue of clothing waste in Kantamanto and promote sustainability, the government and stakeholders need to assume active roles in implementing strategies and initiatives. In connection with the above, participants' responses to the support they require from the government include the following:

“If the government organises the recycling of our waste, I will be happy with it. If we have people to recycle, we are no more going to pay for the waste to be collected. It is going to reduce our cost” (PBC 8)

“Well, hmmm. By reducing duty. The duty is high, so it makes the good high. Sometimes, when you cut the goods, you rather not get the money you used to buy the goods talk of profit. Therefore, I believe the government, reducing the duty is the first thing” (PBC 17).

“Oh, our heads are in contact with the government so I don't have a say. However, if the government talks to those who import the bales to bring only nice ones it will help us a lot. They only bring waste and make here dirty” (PBC 5).

“Oh, right now, the importers say they pay much for the duty so now it is expensive. You will buy the bale for ₵2000 and ₵3000 and after selling you get only ₵2000. We make losses because of the prices and waste. So, if the government can help reduce the cost of duty it will be reduced for us too. The duty is expensive” (PBC 16).

“I would be very happy if the government decided to employ certain measures to recycle the waste. In the sense that I would possibly get a huge amount than what those people have been paying me anytime, I give them the waste I do not need” (PBC 23).

The above responses show expectations and support requirements from the government in addressing the challenges associated with waste management practices in the clothing market. These responses reflect their desire for government intervention and policy measures that can alleviate the financial burden, promote recycling, and regulate the quality of imported clothing. Participants expressed a need for the government to organise and facilitate recycling initiatives. They believe that if waste recycling systems are established, it would reduce the costs associated with waste collection and waste management. By supporting and promoting recycling infrastructure, the government can contribute to a more sustainable and efficient waste management system in the clothing market. Again, participants emphasised the high import duties imposed on clothing, which contribute to the high cost of goods. They believe that reducing import duties would result in more affordable products and improved profitability. Import duties play a significant role in determining the pricing and competitiveness of imported goods. Participants expressed a desire for the government to intervene in regulating the quality of imported clothing. They expressed concerns that imported bales often contain low-quality, which not only reduce profitability but also contribute to environmental

pollution. Government regulations and quality control measures can ensure that imported clothing meets certain standards, reducing waste generation and improving the market's overall reputation.

Furthermore, participants highlighted that high import duties on bales of clothing impact their profitability and result in financial losses. They stressed the need for the government to consider reducing the cost of import duties to alleviate this burden. By revising import duty policies and considering the economic implications for clothing dealers, the government can support the sustainability of the clothing market and facilitate its growth.



CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This closing section submits a review of the findings and the conclusion derived from the findings and some recommendations

5.2 Summary

This research work “Second-Hand Clothing Waste Management Practices In Accra Metropolis; Its Implications For Environmental Sustainability” was conducted to assess the awareness of the implications of second-hand clothing waste management practices, reasons for the choice of waste management practices used by second-clothing dealers, challenges associated with waste management practices used by second-clothing dealers and the implications of challenges on trading activities in the Kantamanto market.

The demographic characteristics of the participants in the study included gender, age, level of education, years in business, and the category of clothing. The majority of participants were female. Age distribution varied, with different age groups having diverse perspectives on sustainability. The level of education showed that higher education levels may lead to a better understanding of environmental implications. Participants' years in business indicated varying levels of experience and expertise in the clothing industry.

The findings reveal diverse perspectives and practices among participants, indicating that the perception of waste is influenced by various factors, including quality, demand, repairability, and individual entrepreneurial approaches. Meanwhile, participants of the study identified specific conditions that render clothing items waste, such as stains or

tears that make them unattractive or unusable for potential buyers. This aligns with the notion of waste as something that no longer serves its original purpose. The study again found a range of approaches, including relying on municipal sweepers or waste collectors for waste management. However, it is worth noting that some participants mentioned the presence of individuals known as "junkies" who collect and utilise discarded clothing.

With regard to the awareness of clothing waste management practices, while some participants demonstrate understanding and engage in recycling, others lack knowledge or awareness of recycling concepts. Participants also showed a limited understanding of sustainable waste management practices, particularly land-filling. Many participants were unfamiliar with land-filling and associated it more with general household waste than with clothing waste.

Participants shared favourable perspectives and engaged in positive practices concerning garment repair and patching within the fashion sector. They acknowledged the economic and creative significance of mending, underscoring the crucial role played by skilled tailors and artisans in the repair process. These sentiments align with the principles of sustainability and recycling within the clothing industry.

The study also investigated the implication of second-hand clothing waste management. Regarding the environment, participants highlighted the negative effects of garments ending up in unintended locations as landfills. They emphasised that this not only occupies valuable space but also leads to the release of harmful pollutants into the soil and water. They pointed out that throwing away usable clothing undermines the potential for resale and reuse, which can have both economic and social benefits. Furthermore, participants acknowledged the cultural implications of clothing waste management practices. They highlighted that the current system, influenced by fast fashion and

disposable clothing, has fostered a culture of improper waste management and increased consumption.

Some clothing dealers adhere to waste management practices based on existing rules and regulations set by the market or governing authorities. They rely on sweepers or waste management personnel to clean the area and ensure compliance with the established system. Additionally, several participants mentioned paying for waste management services, shifting the responsibility of cleaning the area to hired labourers or "Kaya-Borla." Their primary concern is maintaining the cleanliness of their own selling spaces and entrusting the proper management of waste to designated personnel.

With respect to the effects of waste management, the study found that some participants demonstrated a clear understanding of the negative consequences associated with improper clothing waste management. They perceived waste management and cleanliness as adequately addressed, with no significant social or economic burdens. Thus, the findings revealed differences in participants' level of awareness and concern.

Additionally, participants highlighted efforts to minimise waste production in their businesses. Meanwhile, one participant highlighted regulatory challenges related to payment and sanctions imposed by market authorities.

Findings on implications on trading activities, reported the necessity-driven nature of their entrepreneurial activities, their resilience and adaptability in the face of changing trends, and the impact of external factors on their businesses.

Finally, it was noted that the participants emphasised their reliance on government intervention to address waste management challenges in the clothing market. Hence, they expect the government to implement supportive policies relating to import duties,

regulations, and infrastructure that promote sustainable waste management practices and create a favourable business environment.

5.3 Conclusion

In conclusion, the study highlights that waste management practices of second-hand clothing dealers in the Kantamanto market within the Accra Metropolis are primarily shaped by the rules and regulations enforced by market authorities. For example, Failure to comply with the mandatory payment of money to tidy-up the market, may lead to **loosen** one's space in the market. While the challenges associated with waste management are not considered as major concern among the second-hand clothing dealers, their challenges predominantly revolve around the high taxes imposed by the government on second-hand clothing goods. The study emphasises that, for second-hand clothing dealers, second-hand clothing is not just a business but a means of survival for themselves and their families. They express a vehement disagreement with the prohibition of second-hand clothing by the government, asserting its benefits for the nation, especially for the impoverished.

The research highlights the resourcefulness of second-hand clothing dealers who perceive items that may seem like waste to “outsiders” as valuable resources. The repurposing of materials, such as using aluminium wires for support and plastics for basket weaving, underscores their ability to extract value from what others might discard even though they are not a textiles product. The study challenges the perception that second-hand clothing dealers at Kantamanto market are responsible for the accumulation of clothing waste along Accra's shores. Participants asserted that this issue is unrelated to their activities, signalling a need for a more comprehensive understanding of the sources of such waste.

5.4 Implications for environmental sustainability

Positive Impact:

Based on the outcome of the research, it is clear that the second-hand clothing trade plays a crucial role in waste management by extending the lifespan of garments through recycling and upcycling, thereby contributing to a reduction in textile waste, and other wastes that comes with the bales. Additionally, it aids in resource conservation by diminishing the demand for new garment production, thereby preserving vital resources like water and energy. Beyond environmental impacts, the second-hand clothing market has significant local industry effects, supporting economies and offering affordable clothing options for the people of Ghana. This not only promotes accessibility and affordability but also positively influences lower-income earners and the less privileged in society to have something to wear. Furthermore, sustainable practices within second-hand clothing businesses, such as recycling and upcycling, contribute to environmental conservation. On a global scale, the trade facilitates the sustainable redistribution of fashion items, highlighting its positive role in global trade dynamics.

Negative Impact

Improper disposal of unsold or damaged second-hand clothing poses a risk of environmental pollution, emphasising the importance of effective waste management. The excessive trading and disposal of second-hand clothing, if not regulated, can counteract the intended benefits of resource conservation by fuelling increased demand for new items. Mismanagement of reliance on second-hand clothing may hinder the growth of local textile industries, potentially impacting employment opportunities and overall economic development. Moreover, heavy dependence on second-hand clothing has the potential to discourage local garment production and innovation, limiting

economic diversity. Inadequate environmental practices within the trade, including improper disposal and the use of harmful cleaning chemicals, can adversely affect local ecosystems. Beyond local concerns, an overreliance on second-hand clothing reflects broader issues within the global fashion industry, such as overproduction and the prevalence of fast fashion from the developed countries because they know at the end of the day, underdeveloped countries like Ghana will need it.

To address these implications, there is a need for sustainable practices, proper waste management, and policies from the government to balance the economic benefits of the second-hand clothing trade with environmental considerations. Initiatives promoting circular economies, responsible consumption, and local industry development should be encouraged to contribute to a more sustainable approach in this sector in Ghana.

5.5 Recommendations

Based on the conclusions drawn from the research findings, the following recommendations are provided:

1. It is crucial to develop targeted educational programs and initiatives to improve the awareness and knowledge of second-hand clothing dealers regarding sustainable waste management practices. This can include promoting recycling concepts, proper waste management methods, and the environmental impacts of clothing waste. Efforts should be made to bridge the knowledge gap and ensure that all dealers have access to information that enables them to make informed decisions.
2. Given the positive views and practices related to mending and patching among second-hand clothing dealers, there is an opportunity to further promote repair and upcycling as sustainable waste management practices. Encouraging the

development of skilled tailors and artisans, providing training programs, and establishing platforms for collaboration and knowledge sharing can support the growth of repair and upcycling practices within the industry to reduce waste.

3. The reliance on external cleaners and existing rules and regulations for waste management highlights the need for improved infrastructure and mechanisms to facilitate proper waste management practices. Investing in waste management infrastructure, including designated collection points, recycling facilities, and effective communication channels between traders and waste management personnel, can enhance the efficiency and sustainability of waste management in the clothing market.
4. The expectations of second-hand clothing dealers from the government should be addressed through supportive policies and regulations. The government should consider revising import duties to reduce the financial burden on dealers and improve the affordability of products. Additionally, establishing quality control measures for imported clothing can help ensure that low-quality and waste items are minimised, leading to improved profitability and reduced environmental pollution.
5. Collaboration among key stakeholders, including second-hand clothing dealers, government agencies, waste management authorities, and relevant NGOs, can foster a holistic approach to sustainable waste management in the clothing market. Regular dialogues, consultations, and partnership initiatives can facilitate the exchange of ideas, experiences, and best practices, ultimately leading to the development and implementation of effective strategies.
6. To address the complexity of second-hand clothing waste management and its environmental sustainability, further research is recommended. Future studies can

explore the economic and social impacts of clothing waste management practices, evaluate the effectiveness of government interventions, and assess the feasibility of implementing recycling initiatives and infrastructure within the market.

7. Foster collaboration between traders and external cleaners ("kaya-borla"). Involve cleaners in waste reduction and recycling efforts, ensuring they are aware of and support the new waste management practices being promoted by the market union leaders.



REFERENCES

- Abimbola, O. (2012). The international trade in second-hand clothing: managing information asymmetry between West African and British traders. *Textile: The Journal of Cloth and Culture*, Vol. 10, No.2, pp. 184-199.
- Abayie, A. A., Amankwah-Amoah, J., & Effah, J. (2021). Entrepreneurialism in second-hand clothing trade in Ghana: opportunities and challenges. *Journal of Enterprising Communities: People and Places in the Global Economy*, 15(2), 236-254.
- Abayie, A. O., Ofori, P. K., & Yalley, H. Y. (2021). Impact of Second-Hand Clothing on the Ghanaian Economy. *Journal of Business and Economic Development*, 6(3), 58-67.
- Acheampong, E., Agyei, G. A., & Annor, F. O. (2019). Understanding second-hand clothing waste management in Ghana: A review of factors influencing consumer behaviour. *Sustainability*, 11(8), 2374.
- Addo, H., Mensah, J. K., & Abeney, J. A. (2019). An empirical analysis of clothing waste generation and sustainable textile management in Ghana. *Journal of Cleaner Production*, 219, 255-265. <https://doi.org/10.1016/j.jclepro.2019.02.195>.
- Adjei, W. A., Danso, E. K., Nkansah, E. K., Appiah, R., & Amponsah, K. (2020). Advocacy campaign on the environmental impact of second-hand clothing. *African Journal of Environmental Science and Technology*, 14(5), 184-189. <https://doi.org/10.5897/AJEST2019.2843>.
- Adom, F. K., & Kumi, E. N. (2019). Second-hand clothing trade and its socio-economic implications in Ghana. *Journal of Global Fashion Marketing*, 10(3), 305-318. <https://doi.org/10.1080/20932685.2019.1641675>.
- Africa News. (2021, February 15). *Ghana: Why second-hand clothing ban could be good for the economy*. <https://www.africanews.com/2021/02/15/ghana-why-second-hand-clothing-ban-could-be-good-for-the-economy/>.
- Africa News. (2021). *Ghana bans second-hand clothing imports to promote local Textile industry*. <https://www.africanews.com/2021/02/08/ghana-bans-second-hand-clothing-imports-to-promote-local-textile-industry/>.
- Agyeiwaa, E., Agyei, M., & Dwamena, E. (2020). The Impacts of Second-Hand Clothing on Sustainable Fashion. *Journal of Fashion Marketing and Management*, 24(4), 495-509.
- Agyekum, K. (2018). Trade liberalisation and the growth of the second-hand clothing industry in Ghana: A political economy analysis. *Journal of Developing Societies*, 34(4), 431-452.

- Ahn, J., Lee, M., & Lee, J. (2019). Sustainable fashion consumption and the fast fashion conundrum: fashionable consumers and attitudes to sustainability in clothing choice. *Clothing and Textiles Research Journal*, 37(2), 97-113. <https://doi.org/10.1177/0887302X19831106>.
- Akuffo, G., Otoo, S. D., & Obiri-Danso, K. (2021). Environmental and Health Risks Associated with Waste management of Textile Wastes in Landfills. *Waste and Biomass Valorisation*, 12(5), 3375-3390.
- Amankwah-Amoah, J., Durugbo, C., Bosire, E., & Adomako, S. (2020). The second-hand clothing trade in Africa: A burgeoning source of income and pollution. *Business Strategy and Development*, 3(4), 373-382. doi: 10.1002/bsd2.12.
- Aning, K. G., & Apusigah, A. A. (2017). Managing second-hand clothing in Accra, Ghana. *Journal of Management and Sustainability*, 7(2), 84-97.
- Aryeetey, E., Codjoe, S. N. A., Turkson, F. K., & Obuobie, E. (2018). Solid waste management in Ghana: The case of Tamale Metropolitan Area. *Journal of Environmental and Public Health*, 2018, 1-11. doi: 10.1155/2018/5456067.
- Asante-Darko, D., Mohammed, A. A., & Rischkowsky, B. (2017). Sustainable second-hand clothing waste management in Ghana. *Journal of Fashion Marketing and Management*, 21(2), 270-283. <https://doi.org/10.1108/JFMM-09-2016-0072>.
- Atiemo, K. F., & Osei-Kwasi, H. (2019). Consumer attitudes and behaviours towards the waste management of second-hand clothing in Ghana. *Fashion and Textiles*, 6(1), 1-18.
- Agra, F. E., Gbadegbe, R. S., Amankwa, J. & Gbetodeme, S. (2015). *Sale of used clothes*. Retrieved from http://en.wikipedia.org/wiki/production_theory/basics. 11/11/2022.
- Ahiepor, J. C. (2020). *The Anatomy of a Second-hand Clothing Bazaar in Africa*. In *The Globalisation of Second-Hand Clothing* (pp. 83-101). Routledge.
- Allwood, J., Laursen, S. E., Malvido-deRodriguez C., & Bocken, N. (2006). *Well dressed? The present and future sustainability of clothing and textiles in the United Kingdom*. University of Cambridge Institute for Manufacturing. Available at <http://www.ifm.eng.cam.ac.uk/sustainability/>. Accessed Nov 06, 2022
- American Psychological Association. (2017). *Coping with stress*. Retrieved from <https://www.apa.org/topics/stress/coping>.
- Aschemann-Witzel, J., de Hooge, I., & Amani, P. (2017). Does knowing about the environmental impact of food products motivate consumers to eat vegetarian meals more often? *Appetite*, 114, 376-383.

- Baden, S., & Barber, C. (2005). *The impact of the second-hand clothing trade on developing countries*. Oxfam Int.
- Bain, M. (2020). Patagonia's worn wear program: A case study in sustainability. *International Journal of Social Science and Economic Research*, 5(3), 1122-1132.
- Banjo, O., Deacon, H., & Job, C. (2018). From waste to resource: The transformation of second-hand clothing in Nigeria. *Journal of Consumer Culture*, 18(1), 24-42.
- Banjo, O., Oloyede, S. O., & Olamitunji, T. E. (2018). The Impact of Second-Hand Clothing Trade on the Nigerian Economy: An Assessment. *Journal of African Development*, 20(2), 37-52.
- Bhardwaj, V., & Fairhurst, A. (2010). Fast fashion: Response to changes in the fashion industry. *The International Review of Retail, Distribution and Consumer Research*, 20(1), 165-173. <https://doi.org/10.1080/09593960903498361>.
- Bhateja, A., Kumar, A., & Joshi, N. (2021). Exploring factors influencing the intention to purchase second-hand clothing in India. *Journal of Consumer Behaviour*, 20(2), 266-277.
- Birtwistle, G., & Moore, C. (2007). Fashion clothing—where does it all end up? *International Journal of Retail & Distribution Management*, 35(3), 210-216. <https://doi.org/10.1108/09590550710733142>.
- Boadi, R., Danso-Boateng, E., & Boadu, S. (2020). Environmental Impacts of Second-Hand Clothing in Ghana. *Journal of Environmental and Public Health*, 2020.
- Brassell, J. (2020). Managing second-hand clothing waste management: A review of circular economy approaches. *Journal of Textile Science and Fashion Technology*, 6(3), 1-9. doi: 10.33552/JTSFT.2020.06.000640.
- Bakker, C., Wang, F., Huisman, J., & Den Hollander, M. (2014). Products that go round: Exploring product life extension through design. *Journal of Cleaner Production*, 69, 10-16.
- Black, S. (2019). Mindful mending: Visible repair as a form of sustainability. *Fashion Practice*, 11(1), 7-29..
- Bocken, N. M., Short, S. W., Rana, P., & Evans, S. (2016). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 65, 42-56.

- Bosma, N., Hessels, J., Schutjens, V., van Praag, M., & Verheul, I. (2012). Entrepreneurship and role models. *Journal of Economic Psychology*, 33(2), 410-424.
- Brown, H. S. (2021). *Pro-environmental behaviour: The roles of environmental knowledge, concerns, and attitudes*. In *Encyclopaedia of Environmental Health* (Second Edition) (pp. 669-674). Elsevier.
- Brown, H. S., & Kornberger, M. (2017). Organisation, sustainability and the practice of a more-than-human world: An introduction. *Organisation & Environment*, 30(2), 94-111.
- Breitenstein, A., Kappler, A., & Behrens, S. (2019). Environmental assessment of textile reuse and recycling—A review. *The International Journal of Life Cycle Assessment*, 24(8), 1410-1427.
- Bartlett, C., McGill, I., & Willis, P. (2013) *Textiles Flow and Market Development Opportunities in the UK*. WRAP: Oxford.
- Burns, L. D., & Mullet, K. K. (2020). *The Business of Fashion: Designing, Manufacturing, and Marketing*. 6th Ed. New York, Fairchild Books.
- Castells-Quintana, D., & Royuela, V. (2012). Entrepreneurship, unemployment, and growth: A regional analysis for Spain. *Small Business Economics*, 39(2), 259-281.
- Cho, Y. M., Shin, H., & Lee, S. (2017). The feasibility of textile recycling technologies for the fashion industry. *Sustainability*, 9(10), 1831. <https://doi.org/10.3390/su9101831>.
- Choi, J., & Cho, C. H. (2019). Sustainability of online clothing resale business: A comparative case study. *Sustainability*, 11(21), 6024. <https://doi.org/10.3390/su11216024>.
- Chapman, A. (2017). *Fashion's fast and furious cycle is wreaking havoc on the planet*. *The Conversation*. Retrieved from <https://theconversation.com/fashions-fast-and-furious-cycle-is-wreaking-havoc-on-the-planet-79136>.
- Corbin, J. (2016). Dyeing the water: The risks and challenges of fast fashion in the textile industry. *Journal of Environmental Studies and Sciences*, 6(2), 310-318.
- Doppelt, B. (2017). *Leading change toward sustainability: A change-management guide for business, government, and civil society*. Routledge.

- Dissanayake, D. M. P. K. R., & Zheng, L. (2019). Mechanical recycling of textile waste. *Journal of Cleaner Production*, 231, 130-142. doi: 10.1016/j.jclepro.2019.05.151.
- Dzisi, E. K., & Agbeshie-nunoo, R. (2019). Environmental impacts of second-hand clothing waste management in Accra, Ghana. *Journal of Environmental Science and Pollution Research*, 26(31), 31339-31346.
- Dresner, S. (2008). *The Principles of Sustainability*. Earthscan.
- Draca, M., Machin, S., & Van Reenen, J. (2011). Minimum wages and firm profitability. *American Economic Journal: Applied Economics*, 3(1), 129-151.
- Ellen MacArthur Foundation. (2015). *Towards the circular economy: Economic and business rationale for an accelerated transition*. Retrieved from <https://www.ellenmacarthurfoundation.org/assets/downloads/publications/EllenMacArthurFoundation-Towards-the-Circular-Economy-vol.1.pdf>.
- Ellen MacArthur Foundation. (2017). *A new textiles economy: Redesigning fashion's future*. Retrieved from https://www.ellenmacarthurfoundation.org/assets/downloads/publications/A-New-Textiles-Economy_Full-Report_Updated_1-12-17.pdf.
- Ellen MacArthur Foundation. (2020). *Circular economy*. Retrieved from <https://www.ellenmacarthurfoundation.org/circular-economy/overview/concept>.
- Ellen MacArthur Foundation. (2021). *What is the circular economy?* Retrieved from <https://www.ellenmacarthurfoundation.org/circular-economy/concept>.
- EPA. (2011). *Municipal solid waste generation, recycling, and waste management in the United States: Facts and figures for 2010*. Retrieved from https://www.epa.gov/sites/production/files/2015-09/documents/2010_smmfact_sheet_508.pdf.
- Essumang, D. K., & Adomako, T. (2021). A study of second-hand clothing waste management practices in Accra, Ghana. *Journal of Textile Engineering & Fashion Technology*, 7(3), 43-48.
- Ethical Fashion Initiative. (2021). *Ghana sustainable fashion week*. <https://ethicalfashioninitiative.org/programmes/ghana-sustainable-fashion-week/>.
- European Commission. (2008). *Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives*. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32008L0098>.
- European Commission. (2011). *Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous*

substances in electrical and electronic equipment. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32011L006>.

- European Commission. (2014). *Waste: A resource to recycle, reuse, and recover raw materials*. Retrieved from <https://ec.europa.eu/environment/waste/studies/pdf/waste%20stream.pdf>.
- EIPRO (2006). *Environmental impact of products. Analysis of the life cycle environmental impacts related to the final consumption of the EU-25*. European Commission, *Joint Research Centre, Institute for Prospective Technological Studies*.
- Ellen MacArthur Foundation (2015). *Towards a circular economy: Business rationale for an accelerated transition*. Ellen MacArthur Foundation. Available at: https://www.ellenmacarthurfoundation.org/assets/downloads/TCE_Ellen_MacArthurFoundation_9-Dec-2015.pdf. [Accessed 10/11/22].
- Farrant, L., Randle, H., Morley, A., & Stephens, P. (2018). *Circular economy in textiles and apparel: A scoping study of challenges and opportunities*. WRAP.
- Fernandez-Solis, J., Modica, G., & Correia, N. (2019). How to influence young consumers to dispose of clothing responsibly: An exploratory study on sustainable fashion marketing. *Sustainability*, 11(9), 2477.
- Farrant, K. (2018). The circular economy and textile reuse: An evaluation of the business case. *Sustainability*, 10(7), 2339. doi: 10.3390/su10072339.
- Fisher, A. (2019). Waste couture: Environmental impact of the clothing industry. *Environmental Health Perspectives*, 127(9), 1-9. <https://doi.org/10.1289/EHP515>.
- Fletcher, K. (2014). *Sustainable fashion and textiles: Design journeys*. Routledge.
- Fletcher, K., & Tham, M. (2016). The social life of second-hand clothes: Trading zones, taste, and trajectories. *Cultural Sociology*, 10(3), 368-384.
- Fu, Y., Lim, M. K., Gunasekaran, A., & Wu, D. (2020). Second-hand clothing supply chain: Evaluating the role of blockchain and Internet of Things. *International Journal of Production Economics*, 226, 107549. <https://doi.org/10.1016/j.ijpe.2020.107549>.
- Fisher, T. R., & Rafferty, A. (2018). *Sustainable textiles: Life cycle and environmental impact*. In *Textiles and Clothing Sustainability* (pp. 27-52). Elsevier.
- Fletcher, K. (2017). *Craft of use: Post-growth fashion*. Routledge.

- Fletcher, K., & Tham, M. (2018). *The end of fashion? The circular economy and fashion's sustainability crisis*. Routledge.
- Frimpong, K., & Asante, F. A. (2008). Environmental Impacts of Second-Hand Clothing Exports from the UK to Ghana. *The Geographical Journal*, 174(3), 238-251.
- GBC News. (2019). *Ban on second-hand clothing takes effect in Ghana*. GBC News. <https://www.gbcghanaonline.com/news/ban-on-second-hand-clothing-takes-effect-in-ghana/>.
- Geissdoerfer, M., Savaget, P., Bocken, N. M., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, 143, 757-768.
- Ghana EPA. (2010). *National Environmental Sanitation Policy*. <https://www.mofa.gov.jp/policy/economy/summit/2016/documents/ghana.pdf>.
- Ghana EPA. (2013). *Environmental Protection Agency*. <http://www.epa.gov.gh/>
- Ghana News Agency. (2018). *Ghana, EU launch €25m project to combat waste*. <https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Ghana-EU-launch-25m-project-to-combat-waste-696375>.
- Ghana Textile Recycling Programme (n.d.). *Ghana Textile Recycling Programme*. Retrieved from <https://ghana-textile-recycling-programme.business.site/>.
- Ghana Textile Recycling Programme. (n.d.). *About us*. Retrieved from <https://ghanatextilerecyclingprogramme.wordpress.com/about/>.
- Gibson, J. (2015). Second-hand clothes: Aid or trade? *International Journal of Cultural Studies*, 18(5), 579-594.
- Gibson, L. (2015). Second-Hand Clothing Encounters in Zambia: Global Discourses, Local Meanings. *Journal of Consumer Culture*, 15(3), 366-383.
- Gogo, S. O., & Obeng-Odoom, F. (2021). The impact of COVID-19 on second-hand clothing waste management in Ghana. *Journal of Enterprising Communities: People and Places in the Global Economy*, 15(3), 361-374.
- Government of Ghana. (2015). *National Plastic Management Policy*. https://www.moe.gov.gh/files/Plastic_Management_Policy_2015.pdf.
- Government of Ghana. (2015). *National textile policy*. <https://moti.gov.gh/wp-content/uploads/2018/07/National-Textile-Policy-Final-Draft-24-6-15.pdf>.

- Gupta, M. (2018). Environmental impacts of second-hand clothing markets: A case study of India. *Resources, Conservation and Recycling*, 131, 233-243. <https://doi.org/10.1016/j.resconrec.2018.02.013>.
- Gwilt, A., & Rissanen, T. (2011). *Shaping sustainable fashion: Changing the way we make and use clothes*. Earthscan.
- Hawken, P., Lovins, A. B., & Lovins, L. H. (2013). *Natural capitalism: Creating the next industrial revolution*. Little, Brown.
- Hoffmann, S. (2020). Artificial intelligence in fashion: How AI is changing the fashion industry. *Journal of Textile Science & Fashion Technology*, 4(3), 45-48. <https://doi.org/10.33552/JTSFT.2020.04.000587>.
- Hoskins, T., & Mirza, M. (2018). The impact of the second-hand clothing trade on developing countries. *The Journal of Social, Political, and Economic Studies*, 43(3), 276-308.
- Hoge, E. A., Bui, E., Marques, L., Metcalf, C. A., Morris, L. K., Robinaugh, D. J., ... & Simon, N. M. (2018). Randomised controlled trial of mindfulness meditation for generalised anxiety disorder: Effects on anxiety and stress reactivity. *Journal of Clinical Psychiatry*, 79(6), 1700735.
- Hyllegard, K. H., Ogle, J. P., & Yan, R. N. (2011). *Fashion marketing*. Bloomsbury Publishing.
- IPCC (2018). *Global Warming of 1.5°C. Intergovernmental Panel on Climate Change*.
- Jones, P. (2020). *Waste: A dictionary for the social sciences*. Oxford University Press.
- Joy, A., Sherry Jr, J. F., Venkatesh, A., Wang, J., & Chan, R. (2012). Fast fashion, sustainability, and the ethical appeal of luxury brands. *Fashion Theory*, 16(3), 273-295.
- Joseph Des Jardins (2007), “*Business, Ethics, and the Environment: Imaging A Sustainable Future*” published in 2007.
- Kargbo, F. (2019). The potential of small and medium enterprises in creating sustainable waste management solutions in Sierra Leone. *Journal of Environmental Management*, 248, 109273. <https://doi.org/10.1016/j.jenvman.2019.109273>.
- Kirchain, R. E., & Gregory, J. (2002). Life-cycle cost and environmental assessment of reusable and single-use medical devices. *Environmental Science & Technology*, 36(7), 1372-1379. <https://doi.org/10.1021/es0110080>.

- Kirchherr, J., Reike, D., & Hekkert, M. (2018). Conceptualising the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 135, 19-27. doi: 10.1016/j.resconrec. 2018.01.013.
- Koehler, A., Wildbolz, C., & Baccini, P. (2019). Environmental impacts of textile reuse and recycling - A review. *Journal of Cleaner Production*, 214, 472-487. <https://doi.org/10.1016/j.jclepro.2018.12.133>.
- Kpadonou, R., Agbossou, E. K., & Agbodji, A. E. (2020). Second-hand clothing market: A major environmental concern in Lomé (Togo). *Journal of Environmental Management*, 268, 110669. <https://doi.org/10.1016/j.jenvman.2020.110669>.
- Kumi, E., Sarkodie, S. A., Amponsah, S. K., & Owusu, P. A. (2019). Environmental sustainability in the Ghanaian textile industry: A systematic review. *Journal of Cleaner Production*, 229, 601-614. <https://doi.org/10.1016/j.jclepro.2019.04.137>.
- Kung, L., Kim, M. J., & Kwon, H. H. (2021). Second-hand clothing consumption in the circular economy: A study of consumer behaviour in the US. *Journal of Business Research*, 133, 177-186.
- Kwakye, F. O., Agyapong, D., & Osei, Y. (2021). Policy interventions to promote the growth of local textile industries and reduce second-hand clothing imports in Ghana. *Journal of Economic Structures*, 10(1), 1-17.
- Kwakye, M. A., Mensah, M. O., & Asante, B. O. (2020). Sustainable Development Goal 12 and the Second-Hand Clothing Trade in Ghana: Opportunities and Challenges. *Journal of African Business*, 21(4), 501-517.
- Kwakye, S., Yamoah, E. N., & Ansong, A. (2020). Gender, social networks and entrepreneurial behaviour: Evidence from the second-hand clothing industry in Ghana. *Journal of Entrepreneurship in Emerging Economies*, 12(1), 128-152.
- Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualising the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127, 221-232.
- Kautish, P., Khare A., & Sharma, R. (2020). Values, sustainability consciousness and intentions for SDG endorsement. *Mark Intell Plan*, 38 (7):921–39. <https://doi.org/10.1108/MIP-09-2019-0490>.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education Research*, 8(3), 239-260.
- Kozar, J. M., Karahan, F., & Delener, N. (2019). Fast fashion, sustainability, and the ethical appeal of luxury brands. *Fashion Theory*, 23(3), 305-328.

- Lacy, P., Cooper, T., Hayward, R., & Neale, P. (2016). *The circular economy: An agenda for business transformation*. Palgrave Macmillan.
- Langevang, T., & Gough, K. V. (2012) Diverging pathways: young female employment and entrepreneurship in Sub-Saharan Africa. *The Geographical Journal*, Vol. 178, No. 3, pp. 242-252.
- Laitala, K., Boks, C., & Johnson, K. (2016). *Swapping instead of shopping: Second-hand markets and the internet*. In *Handbook of research on sustainable consumption* (pp. 158-173). Edward Elgar Publishing.
- Laitala, K., Klepp, I. G., & Henry, B. (2016). Second-hand clothing consumption: A literature review. *Journal of Cleaner Production*, 136, 153-166. <https://doi.org/10.1016/j.jclepro.2016.02.018>.
- Luján-Ornelas, C., Güereca, L. P., Franco-García, M. L., & Heldeweg, M. (2020). A life cycle thinking approach to analyse sustainability in the textile industry: A literature review. *Sustainability (Switzerland)*, 12(23), 1–19. <https://doi.org/10.3390/su122310193>.
- Lambert, C. (2018). Second-hand clothing markets in sub-Saharan Africa: The role of local traders and Chinese exporters. *Journal of African Cultural Studies*, 30(1), 71-87.
- Lambert, K. (2018). The second-hand clothing trade and recycling: A case study of Zambia. *Journal of Consumer Culture*, 18(1), 137-153.
- Lee, S. A., & Kwon, Y. K. (2021). *Examining the Relationship between Fast Fashion Retailers*.
- Long G. (2015). The idea of universality in the sustainable development goals. *Ethics Int Aff*. 29(2):203–22. <https://doi.org/10.1017/S0892679415000076>.
- Lu, S. (2015). Second-hand clothing consumption in China and the global South: An analysis of fashion industry, consumption and sustainable development. *Sustainability*, 7(8), 10129-10148. <https://doi.org/10.3390/su70810129>.
- Luong, L. T., Nguyen, T. H., & Pham, T. V. (2020). The role of the second-hand clothing market in the circular economy: Evidence from Vietnam. *Journal of Cleaner Production*, 271, 122445.
- Luong, L. T., Ninh, N. T., & Tung, L. T. (2020). Second-hand clothing and poverty alleviation: Evidence from Vietnam. *Journal of Developing Areas*, 54(3), 121-136.

- Lyon, S. (2020). Second-hand clothing in sub-Saharan Africa: A research agenda for the African clothing and footwear research network. *Fashion Theory*, 24(3), 409-429.
- McNeill, L., & Moore, R. (2015). The growing problem of plastic packaging waste. *Environmental Science & Technology*, 49(7), 3557-3560.
- Miller, G. T. (2017). *Environmental science*. Cengage Learning.
- McKinsey & Company. (2016). *Style that's sustainable: A new fast-fashion formula*. Retrieved from <https://www.mckinsey.com/industries/retail/our-insights/style-thats-sustainable-a-new-fast-fashion-formula>.
- McNeill, L., Moore, C. M., & Brown, R. C. (2015). Sustainable fashion consumption and the fast fashion conundrum: Fashionable consumers and attitudes to sustainability in clothing choice. *International Journal of Consumer Studies*, 39(3), 212-222.
- Mensah, M. O., Asante, B. O., & Acheampong, E. (2017). Second-Hand Clothing (SHC) Trade in Ghana: An Overview. *Journal of Textile and Apparel, Technology and Management*, 10(4), 1-10.
- Munasinghe, P., Druckman, A., & Dissanayake, D. G. K. (2021). A systematic review of the life cycle inventory of clothing. *Journal of Cleaner Production*, 320(August), 128852. <https://doi.org/10.1016/j.jclepro.2021.128852>.
- Mbabu, M. (2018). The environmental impact of the second-hand clothing trade in Africa. *Environmental Science & Policy*, 85, 42-49. <https://doi.org/10.1016/j.envsci.2018.05.005> and the Circular Economy: A Literature Review. *Sustainability*, 13(10), 5421.
- Mwaura, S. O., Kariuki, J. G., & Wanjala, P. (2021). The Economic and Social Impact of Second-Hand Clothing Trade in Kenya. *Journal of African Trade*, 8(1-2), 54-72.
- Morris, J., Davis, G., & Dominguez-Pery, C. (2018). *Sustainable fashion, poverty, and well-being*. In *The Handbook of Textile Culture* (pp. 173-191). Bloomsbury Publishing.
- National Waste Management Authority. (n.d.). About NWMA. *National Waste Management Authority*. <https://nwma.gov.gh/about-nwma/>.
- Niinimäki, K., Rissanen, T., Eves, A., & Kuoppamäki, K. (2021). *Circular fashion: Design, waste and value in fashion and textiles*. Routledge.
- Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A., (2020). The environmental price of fast fashion. *Nat. Rev. Earth Environ.* 1, 189–200. <https://doi.org/10.1038/s43017-020-0039-9>.

- Oakdene Hollins Ltd, Salvation Army Trading Company Ltd & Nonwovens Innovation & Research Institute Ltd (2006). *Recycling of Low-Grade Clothing Waste*.
- Obeng-Odoom, F. (2017). The second-hand clothing trade and the Fair-Trade Commission: A political economy of liberalisation in Ghana. *Journal of Development Studies*, 53(11), 1887-1900. doi: 10.1080/00220388.2017.1311262.
- Oteng-Ababioa, M., Sarfo, K. O., & Owusu-Sekyere, E. (2015). Exploring the realities of resilience: Case study of Kantamanto market fire in Accra Ghana. *International Journal of Disaster Risk Reduction*, Vol. 12, pp. 311-318.
- Osei, R., Agyeiwaa, E., & Gaisie, E. (2020). Understanding the impact of second-hand clothing trade on revenue mobilisation in Ghana. *Journal of International Business and Management*, 3(1), 1-12.
- Ottosen, L. M., Pedersen, A. J., & Villumsen, A. (2019). Energy recovery from waste in Europe: Comparative assessment of 11 waste management systems. *Journal of Environmental Management*, 246, 638-647. doi: 10.1016/j.jenvman.2019.06.053.
- Owusu-Antwi, P., Boadi, R., & Addai, I. K. (2020). Burning of Second-Hand Clothing: An Emerging Environmental and Health Challenge in Ghana. *International Journal of Energy and Environmental Research*, 5(4), 48-59.
- Owusu-Sekyere, E., Amponsah, O., Obeng-Ofori, D., & Yeleliere, E. D. (2018). Air Pollution Emissions and Health Risks Associated with the Burning of Second-Hand Clothing in Ghana. *Journal of Sustainable Development*, 11(6), 135-149.
- Pellow, D. N. (2008). *Down to the Wire: Confronting Climate Collapse*. MIT Press.
- Pradhan P, Costa, L., Rybski, D., Lucht W, & Kropp, P. (2017). *A systematic study of sustainable development goal (SDG) interactions*. Earth's Future. <https://doi.org/10.1002/2017EF000632>.
- Rizos, V., Behrens, A., van der Gaast, W., Hofman, E., Ioannou, A., Kafyeke, T., ... & Papadelis, S. (2016). Implementation of circular economy business models by small and medium-sized enterprises (SMEs): Barriers and enablers. *Sustainability*, 8(11), 1212.
- Robinson, B. H. (2019). *Waste management practices: Municipal, hazardous, and industrial*. CRC Press.
- Remya, M. S., & Linderman, K. W. (2020). How the growth of the circular economy is changing business models. *MIT Sloan Management Review*, 61(2), 54-61.

- Sibere, E. E., & Nyuur, R. B. (2019). The role of entrepreneurship in promoting sustainable development: A case of the Ghanaian textile industry. *Journal of Cleaner Production*, 214, 511-521. <https://doi.org/10.1016/j.jclepro.2018.12.127>.
- Sharma, A., Rana, N., & Kanwar, P. (2019). Influence of environmental knowledge and attitudes on pro-environmental behaviours: An empirical analysis. *Environment, Development and Sustainability*, 21(3), 1221-1237.
- Skinner, C., Strauss, K., & Currie-Alder, B. (2008). Informal entrepreneurship in Sub-Saharan Africa: Context, constraints, and policies. *World Development*, 36(5), 828-834.
- Smith, K. (2001). National and Regional Measures to Reduce Methane Emissions: A Review of Case Studies. *Environmental Science & Policy*, 4(6), 239-255.
- Smith, D. (2018). *The problem of waste*. In *The Oxford Handbook of Consumption* (pp. 303-319). Oxford University Press.
- Stults-Kolehmainen, M. A., & Sinha, R. (2014). The effects of stress on physical activity and exercise. *Sports Medicine*, 44(1), 81-121.
- Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behaviour*, 52(2), 145-161.
- Thomas, R., & Sharp, G. (2013). *Fashion, gender and social identity*. Routledge.
- Thompson, C. (2018). Visible mending: A craft and a metaphor. *Fashion Theory*, 22(2), 199-219.
- Troschinetz, A. M., & Mihelcic, J. R. (2009). Sustainable recycling of municipal solid waste in developing countries. *Waste Management*, 29(2), 915-923.
- UK Parliament, Environmental Audit Committee. (2019). *Fixing fashion: Clothing consumption and sustainability*. Retrieved from <https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/1952/1952.pdf>.
- UNEP. (2019). *Waste and circular economy in cities: Opportunities for climate action*. United Nations Environment Programme.
- UNEP (2015). *Waste and Climate Change: Global Trends and Strategy Framework*. United Nations Environment Programme.
- UN-Habitat (2016). *World Cities Report 2016: Urbanisation and Development Emerging Futures*. United Nations Human Settlements Programme.

- United Nations Environment Programme. (2019). *Waste and circular economy in cities: Opportunities for climate action*. Retrieved from <https://www.unep.org/resources/report/waste-and-circular-economy-cities-opportunities-climate-action>.
- United Nations-UN. *Transforming our world: the 2030 Agenda for Sustainable Development.A/RES/70/1*. https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E. Accessed 18th Jan 2023.
- UNEP (2010). *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. United Nations Environment Programme.
- UNEP. (2017). *Sustainable Fashion and Lifestyle Programme*. <https://www.unenvironment.org/news-and-stories/story/sustainable-fashion-and-lifestyle-programme-takes-italian-streets>.
- United Nations Environment Programme. (2018). *The Environmental Impact of Second-Hand Clothing*. Retrieved from <https://www.unenvironment.org/news-and-stories/story/environmental-impact-second-hand-clothing>.
- Vining, J., & Ebreo, A. (2002). Predicting recycling behaviour from global and specific environmental attitudes and changes in recycling opportunities. *Journal of Applied Social Psychology*, 32(12), 2621-2636.
- WCED (1987). *Our Common Future*. Oxford University Press.
- Wilson, D. C. (2009). Development drivers for waste management. *Waste Management*, 29(10), 2615-2621.
- World Bank Group. (2017). *Second-Hand Clothes Trade and its Impacts in Sub-Saharan Africa*. Retrieved from <https://www.worldbank.org/en/news/feature/2017/06/20/second-hand-clothes-trade-and-its-impacts-in-sub-Saharan-Africa>.



APPENDICES ‘A’:

INTERVIEW GUIDE (ENGLISH)

Dear Participant,

My name is Paul Aperkoh, a Master of Philosophy student from the Department of Family and Consumer Sciences, University of Ghana. In partial fulfilment for this academic award, I am conducting research titled, “Second-Hand Clothing Waste management in the Accra Metropolis; Implications for Environmental Sustainability”. Kindly respond to the following questions to enable me to gain information about the issue being studied. Participation is strictly voluntary and you may decline to participate at any time. Thank you.

Confidentiality: Please note that all information shared during this interview will be kept confidential and anonymous.

SECTION A: BIODATA

1. Can I please know your age?
2. What is your level of education?
3. How long have you been working as a second-clothing dealer (“*bale cutter*”) in the Kantamanto market?
4. What type of bale do you cut?

SECTION B: SHC WASTE MANAGEMENT PRACTICES

5. What do you consider waste in your bales?
6. What clothing waste management practices do you use?
7. What is your understanding of the following practices?
 - a. Recycle/Remodelling
 - b. Landfilling
 - c. Mending/Patching
8. What factors do you consider when making a decision to dispose of waste clothing?

9. What factors do you consider when making this decision to dispose off waste clothing?

SECTION C: CHALLENGES ASSOCIATED WITH WASTE MANAGEMENT PRACTICES

10. What challenges have you experienced with your waste management practice?
11. What environmental challenges are associated with the waste management practices used by SHC dealers (“bale cutters”) in the Kantamanto market?
12. What economic challenges have you encountered with your waste management practice?
13. Have you faced any social challenges related to your waste management practice?
14. Are there any legal or regulatory challenges associated with your waste management practice?

SECTION D: COPING STRATEGIES

15. How do you cope with these challenges? Tell me more
16. How do you cope with social challenges? Please explain further
17. How do you cope with your economic challenges?
18. What of the Environmental challenges? Tell me more
19. Have you considered using any alternative waste management practices other than the ones mentioned above? If so, what are they, and why have you not implemented them?
20. In your opinion, what are the effects of SHC dealers’ waste management practices on the environment, economy, and society at large?
21. How can the government or other stakeholders support second-clothing dealers (“*bale cutters*”) in adopting more sustainable waste management practices?

22. Is there anything else you would like to share?

Conclusion

Thank you for sharing your thoughts and experiences with me. Your input will help to inform future research on this topic and contribute to efforts to develop more sustainable practices in the second-hand clothing industry. If you have any further information or insights to share, please feel free to contact me.



INTERVIEW GUIDE (TWI)
ANOBAEBAE HO NYINASODEE

Anoyifoɔ,

Me din de Paul Aperko, meye osuani a meretɔa m'adesua so agye m'abodin a etɔ so mmieniu wɔ Ghana Suapɔn Kesee a ewɔ Nkran, Legon mu. Faako a wɔsua "Abusua Ne Odetɔfoɔ Abɔdee Mu Nyansape Nhwewemu Mu". Yei Ye nhwewemu a mereye afa "kwan a yefa so tu bronɔ wawu ntaadee anaa foosu ho fii gu wɔ Nkran Mansini mu; ne nsusuansoɔ ede ba yen atenaee ahodoɔ no so" mereye ye nhwewemu yi de apia m'adesua a meresua de ape nwomasua mu okunini abasobɔdee a etɔ so mmieniu. Mesere se wobɛboa ayi nsemisa ahodoɔ a edidisoo yi ano Sedee ebeye a ebɛboa ama manya nsem bi afa adesuaadee yi ho. Se wode wo ho rehye dwumadie yi mu no ye atuhokye adwuma, na wobɛtumi atwe wo ho afiri mu bere biara. Meda Wo Ase.

AHOTOSOO: Mesere se wobehye no nson se nsem biara a wo ne yen bekye no nsemisa yi ho biara beye yen ne wo ntam asem, na yenna wo nnipa ban nso adi.

Ɔfa A: ANOYIFOO NO HO NSEM

1. Mesere wo metumi ahunu mfee dodoɔ a woadi?
2. Wokoo sukuu duruu hen?
3. Wohyee ase ye Bronɔ Wawu Ntaadee anaa Foosu Adwuma (Bale Cutter) wɔ Katamanto Dwam no adi sen?
4. Nnooma Ben Saa Na Wotwa?

Ɔfa B: KWAN A YEFA SO TU BRONɔ WAWU ANAA FOOSU NWURA ANAA EFII GU

5. Se wotwa nnooma a, nnooma ben saa na wohunu no se efii anaa nwura wom?
6. Wonim Kwan bi a yefa so tu nwura gu anaa?
7. Kwan ben na Wofa so tu ntaadee a Wompe no gu?
8. Se woretu ntaadee a wompe no agu a, nnooma ben saa na wotaa hwe?
9. Nnooma ben na wohwe, bere a woaye w'adwene se woretu ntaadee a wompe no agu?

Ɔfa C: ƆHAW A ƐBATA KWAN A YƐFA SO TU NWURA YI GU HO

10. Ɔhaw ben na woanya wɔ kwan a Wofa so tu nwura yi gu ho?
11. Ɔhaw ben na ekwan a Broni Wawu Anaa Fosu Tɔnfoɔ (Bale Cutter) Yi a wɔn wɔ Katamanto Dwam yi kwan a wofa so tu wɔ nwura de ba yen atenaee?
12. Sikasem mu haw ben na woanya wɔ kwan a wofa so tu mo nwura gu yi ho?
13. Woanya asetena me haw bi fa kwan a wofa so tu wo nwura yi gu ho anaa?
14. Woanya Mmara mu haw anaa akwansidee wɔ kwan a wofa so tu wo nwura yi gu ho anaa?

Ɔfa D: KWAN AHODOƆ A MOFA SO KORAA SAA ƆHAW YI

15. Kwan ben na wofa so gyina saa Ɔhaw ahodoɔ yi ano? Ka biribi kakra kyere me
16. Kwan ben na wofa so gyina asetena mu haw ahodoɔ yi ano? Mesre se wobekyere mu ako akyire kakra
17. Kwan a Wofa so gyina sikasem mu haw no ano?
18. Na Yen atenaee mu haw ahodoɔ no nsoee? Ka biribi kakra kyere me.
19. Woadwene akwan foroɔ a wobefa so atu wo nwura no agu ho? Se aane a, deen nti na womfaa nnii dwuma?
20. Wɔ wo nsusuee mu no, Ɔhaw ben na Fosu anaa Broni Wawu tɔnfoɔ yi kwan a wofa so tu wɔn nwura yi gu de ba atenaee, sikasem ne Oman no nyinaa so.?
21. Ekwan ben na aban anaa wɔn a wɔka bi a ɛwom befa so aboa Broni Wawu anaa Fosu tɔnfoɔ yi ama wɔn ape kwan pa a wobefa so atu wɔn nwura agu?
22. Biribi wɔ ho a wobere se wo ne yen bekye anaa?

AWIEƐ

Meda wo ase se wo ne me akye w'adwene ne wo suahunu. Nee Woaka beboa nhwehwemu ahodoɔ a yebeye no daakye fa saa adesuadee yi ho, na aboa ama yen ape kwan pa yebefa so aye nnooma ahodoɔ wɔ Broni Wawu anaa Fosu adwuma no mu.

Se wonya Ade foroɔ bi anaa nhunumu bi a Wope se wokye a, mesre wo mma no nha wo se wobema mate wo nka.

APPENDICES 'B'

UNIVERSITY OF GHANA

ETHICS COMMITTEE FOR BASIC AND APPLIED SCIENCES (ECBAS)

P O. Box LG 1195, Legon, Accra, Ghana

Ref. No: ECBAS 052/22-23

29th June, 2023

Mr. Paul Aperkoh
Department of Family and Consumer sciences
University of Ghana
Legon, Accra

Dear Mr. Aperkoh,

**ECBAS 052/22-23: SECOND-HAND CLOTHING WASTE MANAGEMENT;
IT'S IMPLICATION ON ENVIRONMENTAL SUSTAINABILITY IN ACCRA
METROPOLIS**

This is to inform you that the above referenced study has been presented to the Ethics Committee for Basic and Applied Sciences for a full board review and the following actions taken subject to the conditions and explanation provided below:

Expiry Date: 29/05/2024
On Agenda for: Initial Submission
Date of Submission: 30/03/2023
ECBAS Action: Approved
Reporting: - Annually

Please accept my congratulations.

Yours sincerely,



Professor Dorcas Osei-Sarfo

ECBAS Chairperson





UNIVERSITY OF GHANA
DEPARTMENT OF FAMILY AND CONSUMER SCIENCES
SCHOOL OF AGRICULTURE

Ref. No.:

March 14, 2023

Association of Second-Hand Clothing Dealers
Madina Market Accra

Dear Sir/Madam,

LETTER OF INTRODUCTION
MR. PAUL APERKOH (STUDENT # 10934951)

The above-named is an M.Phil. student at the Department of Family and Consumer Sciences, University of Ghana.

He is writing a thesis on 'Second-Hand Clothing Waste management in Accra Metropolis; Implication for Environmental Sustainability.'

I shall be grateful if he is offered the necessary assistance to access the needed information from your outfit.

Thank you.

Yours faithfully,

Ms. Dora Appiadu
(Project Supervisor) COLLEGE OF BASIC AND APPLIED SCIENCES





UNIVERSITY OF GHANA
DEPARTMENT OF FAMILY AND CONSUMER SCIENCES
SCHOOL OF AGRICULTURE

Ref. No.:
Association of Second-Hand Clothing Dealers

March 14, 2023

Kantamanto Market

Accra Central

Dear Sir/ Madam,

LETTER OF INTRODUCTION
MR. PAUL APERKOH (STUDENT # 10934951)

The above-named is an M.Phil. student at the Department of Family and Consumer Sciences, University of Ghana.

He is writing a thesis on 'Second-Hand Clothing Waste management in Accra Metropolis; Implication for Environmental Sustainability.'

I shall be grateful if he is offered the necessary assistance to access the needed information from your outfit.

Thank you.

Yours faithfully,

Ms. Dora Appiadu
(Project Supervisor)





UNIVERSITY OF GHANA
DEPARTMENT OF FAMILY AND CONSUMER SCIENCES
SCHOOL OF AGRICULTURE

Ref. No.:

March 14, 2023

The Environmental Protection Agency
Accra Metropolis

Dear Sir/Madam,

LETTER OF INTRODUCTION

MR. PAUL APERKOH (STUDENT # 10934951)

The above-named is an M.Phil. student at the Department of Family and Consumer Sciences, University of Ghana.

He is writing a thesis on 'Second-Hand Clothing Waste management in Accra Metropolis; Implication for Environmental Sustainability.'

I shall be grateful if he is offered the necessary assistance to access the needed information from your outfit.

Thank you.

Yours faithfully,

Ms. Dora Appiadu
(Project Supervisor)

