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ARTICLE

Challenges of Implementing Green Orientation and Sustainable Business Practices: A Case of Ndola District, Zambia

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ABSTRACT

Small businesses and entrepreneurs play a crucial role in economic development, yet they face increasing challenges in managing sustainability amidst rapidly changing environmental conditions. Although the demand for environmentally responsible business practices is growing, many small enterprises struggle to integrate sustainability into their operations. Despite their potential to contribute to global sustainability initiatives, current literature lacks sufficient attention to the adoption of green, clean, and smart technology adaptations in small business models. This paper examines the concept of green orientation and sustainable business practices, highlighting the importance of environmentally friendly and efficient design in fostering long-term business resilience. Grounded in the Diffusion of Innovation Theory, the study examines the challenges small businesses face in adopting and implementing sustainable innovations to enhance their competitiveness and environmental responsibility. A qualitative research approach was employed, with data collected through interviews and observations from 30 participants selected through purposive and snowball sampling techniques. The findings reveal that while some small businesses are embracing green practices, many face financial, technological, and policy-related constraints that hinder full implementation. The paper emphasizes the importance of strategic policy interventions, financial support mechanisms, and capacity-building initiatives in enhancing green entrepreneurship. By providing insights into the adoption of sustainable business practices, this study contributes to the ongoing discourse on fostering future entrepreneurs through the adoption of green, clean, and smart technologies.

Keywords: Business; Green Orientation; Innovations; Sustainability; Zambia

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1. Introduction

The concept of green orientation refers to initiatives that promote environmental consciousness, sustainable practices, and eco-friendly behaviors[1]. These may include training employees on reducing waste, conserving energy, or using sustainable materials. Companies with a green orientation focus on reducing their carbon footprint, adopting renewable energy, and incorporating sustainability into their operations and corporate social responsibility (CSR) initiatives[2].

This study examines the extent of green orientation among businesses in Ndola District by assessing their awareness, attitudes, and commitment to environmentally sustainable practices. It investigates the factors influencing the adoption of sustainable business practices, considering economic, social, and regulatory aspects. Additionally, the study analyzes the challenges associated with implementing green business practices in both formal and informal sectors.

The increasing global focus on environmental sustainability has led businesses across various sectors to integrate eco-friendly practices into their operations[1]. However, small businesses and entrepreneurs face significant challenges in adopting sustainability measures due to financial constraints, lack of technical expertise, and inadequate institutional support[3]. Despite these challenges, Shuherudin et al.[4] argues that small businesses play a crucial role in fostering economic growth and innovation, particularly in developing economies like Zambia. Their ability to implement sustainable business practices is essential for long-term environmental conservation and economic resilience.

According to Watson[5], green orientation refers to an organization's strategic commitment to environmental sustainability, which includes practices such as waste reduction, energy efficiency, and eco-friendly product development. At an individual level, a green orientation means adopting habits that contribute to environmental sustainability, like recycling, using renewable energy, reducing water waste, and supporting eco-friendly products. For example, in many African countries, small-scale agribusinesses have adopted organic farming methods and biodegradable packaging to minimize environmental impact[6]. Similarly, sustainable business practices, defined as operations that meet present needs without compromising future generations' ability to meet their own, are increasingly seen as a competitive advantage. In Zambia, small enterprises in the textile industry are gradually shifting toward recycled materials and ethical labor practices, aligning their business models with sustainability goals.

This paper aims to bridge the knowledge gap on sustainability adoption in small businesses and provides practical insights into how these enterprises can contribute to global environmental goals while ensuring business growth and competitiveness. As green orientation can have different meanings depending on the context, this paper specifically problematizes the critical challenges faced by business enterprises in managing the green environment on the Copperbelt in Zambia. To address this gap, this study is framed within the Diffusion of Innovation (DOI) Theory, which provides a lens for understanding how new ideas and technologies, such as green business practices, are adopted within a specific social system.

2. Literature Review

Green orientation and sustainable business practices have emerged as critical aspects of modern business operations, driven by the need to balance economic growth with environmental stewardship. Green orientation refers to a company's commitment to integrating environmental considerations into its business strategy, products, and operations[7]. This includes adopting environmentally friendly technologies, reducing carbon footprints, and prioritizing sustainability in decision-making[8].

Sustainable business practices, on the other hand, encompass strategies and actions that ensure long-term business viability while minimizing negative environmental and social impacts[9]. These practices include corporate social responsibility (CSR), green innovation, waste management, and resource efficiency. While sustainability is a global concern, its adoption varies across regions, industries, and business sizes[10]. This literature review explores green orientation and sustainable business practices from global, African, and Zambian perspectives, with a particular focus on small and medium enterprises (SMEs) in Ndola District.

Globally, green orientation and sustainable business practices have gained traction as essential components of responsible business conduct[11]. Numerous studies highlight the importance of environmental sustainability in fos-

tering long-term business success and social welfare[4]. Concepts like green innovation, eco-efficiency, and corporate social responsibility (CSR) are widely practiced by businesses worldwide, particularly in developed economies[1]. Research shows that companies in Europe and North America have integrated sustainability into their core business strategies, leveraging green technologies and promoting eco-friendly products[12].

According to Guo et al.[7], green entrepreneurship focuses on stimulating demand for green products and services and fulfilling environmental and commercial needs via the production of eco-friendly offerings. Their study examines how green entrepreneurial orientation affects environmental performance in Pakistan's manufacturing industries, also considering the mediating function of environmental innovation. Results show that green entrepreneurial orientation enhances environmental performance. Businesses can boost product value and gain a competitive edge by replacing inefficient and wasteful methods with innovative and improved mechanisms, technologies, activities, and products. However, the global literature often focuses on large multinational corporations, with limited attention to small and medium enterprises (SMEs) and their approach to sustainability. This study aims to fill this gap by exploring green orientation and sustainable business practices among SMEs in Ndola District.

In Africa, the adoption of green orientation and sustainable business practices remains uneven, influenced by varying levels of economic development and regulatory frameworks[13]. Studies in South Africa and Nigeria highlight a growing awareness of environmental issues and the gradual adoption of green business practices[14]. Despite this progress, many African businesses face challenges such as limited access to green technologies, inadequate regulatory enforcement, and a lack of financial incentives[15]. The literature on sustainable business practices in Africa often emphasizes large corporations and extractive industries, neglecting the experiences of SMEs in urban markets[16]. This research addresses this gap by focusing on SMEs in Ndola District, examining their green orientation and sustainable business practices.

In Zambia, the concept of green orientation and sustainable business practices is still evolving[17]. Existing studies primarily focus on large-scale industries like mining and agriculture, with minimal attention to SMEs. Government policies promoting environmental sustainability, such as the Zambia Environmental Management Act, provide a regulatory framework, but implementation remains inconsistent[18]. The informal sector, which constitutes a significant portion of Zambia's economy, often operates outside formal regulatory structures, further complicating efforts to promote sustainability[19].

Despite the global push for sustainability, existing research on small businesses in Zambia, such as research by Phiri[20], has largely overlooked the integration of green, clean, and smart technologies into their operations. Current small business publications primarily focus on profitability and operational efficiency, with limited attention to sustainability imperatives. As a result, there is a gap in understanding how small businesses, particularly in Ndola District, navigate sustainability challenges and adopt environmentally responsible practices.

Furthermore, Phiri[20] shows that many entrepreneurs perceive sustainability initiatives as costly and complex, making them reluctant to transition toward greener models. However, evidence from other regions suggests that adopting sustainability measures can enhance business resilience and market competitiveness. For instance, small enterprises in South Africa's tourism sector have implemented solar energy solutions and water conservation strategies, reducing operational costs while meeting environmental regulations. Understanding the extent to which small businesses in Ndola engage in similar initiatives is critical for addressing the knowledge gap and promoting green entrepreneurship in Zambia.

Another study by Mwitwa[21] examines governance and sustainability challenges in landscapes shaped by mining in Zambia and the Democratic Republic of Congo. The study reveals that mining affects forests in numerous direct and indirect ways, such as deforestation during site development and the sourcing of high-quality timber. The study suggests that these practices intensify indirect pressure on forests through the population pull effect of mining towns. Huge investments in mining were in sharp contrast with levels of poverty and environmental degradation. The findings illustrate the need for concerted efforts to mitigate the negative impacts of mining on the Copperbelt.

A critical synthesis of the literature reveals a convergent theme: while the strategic value of green orientation

is recognized globally, its adoption is heavily influenced by localized economic, regulatory, and capacity factors. The existing body of work provides a strong macro-level understanding but offers limited micro-level, contextual insights into the daily realities of SMEs in secondary African cities like Ndola. The transition from global principles to African and Zambian practice is characterized by a significant implementation gap, particularly within the informal and SME sectors. This study, therefore, seeks to fill this gap by providing a granular, context-rich analysis of the adoption challenges within Ndola District, thereby contributing a missing perspective from the Zambian Copperbelt to the discourse on green entrepreneurship.

3. Theoretical Framework

This study is grounded in the Diffusion of Innovation (DOI) theory [22]. The DOI theory seeks to explain how, why, and at what rate new ideas and technologies spread across cultures and societies. It provides the theoretical foundation for explaining how new sustainability practices and green technologies spread among small enterprises and the factors influencing their adoption or resistance. Rogers's work was primarily influenced by studies in rural sociology, where he examined how farmers adopted new agricultural practices. Over time, the theory has been widely adopted across various disciplines, including business, education, communication, and health sectors [22].

The Diffusion of Innovation Theory is built on four key elements: innovation, communication channels, time, and social systems [23]. Innovation refers to an idea, practice, or object perceived as new by an individual or a group. Communication channels are the means by which information about the innovation is transmitted. Time is involved in the innovation-decision process, the rate of adoption, and the time taken for the innovation to be widely accepted. Lastly, social systems are the networks and community structures that influence the adoption process [24].

The DOI theory categorizes adopters into five groups: innovators, early adopters, early majority, late majority, and laggards. Innovators are risk-takers who readily embrace new ideas. Early adopters are opinion leaders who drive the diffusion process. The early majority adopts innovations after a degree of validation, while the late majority adopts them due to peer pressure or economic necessity. Laggards are resistant to change and adopt innovations only when they become mainstream or necessary.

In the context of this study on green orientation and sustainable business practices in Ndola District, Zambia, the DOI theory provides a robust framework for understanding how businesses adopt environmentally friendly practices and sustainable innovations. Ndola, being an industrial hub with a diverse population and business environment, offers a unique setting to examine the adoption patterns of green practices. The theory helps identify the characteristics of businesses that are early adopters of green orientation and the factors influencing the diffusion of sustainable practices within this economic landscape.

Moreover, the DOI theory aids in exploring the role of communication channels, such as industry networks, policy advocacy, and environmental awareness campaigns, in spreading sustainable business practices. By analyzing the social systems in Ndola, including business associations and community engagement, the study can pinpoint key influencers and barriers in the adoption process.

The historical and theoretical underpinnings of the DOI theory thus offer a comprehensive lens for investigating the dynamics of green orientation in Ndola District. This approach not only enriches the study's theoretical foundation but also ensures that the findings contribute to broader discussions on sustainable business practices and their diffusion in developing economies.

4. Methodology

This study employed a qualitative research approach, grounded in the constructivist paradigm, to explore green orientation and sustainable business practices [25]. The research was guided by the Diffusion of Innovation Theory, which provided insights into how sustainable business practices spread within communities. The research was conducted at two strategically selected sites in Ndola: the Ndola Business Center and Chipulukusu Compound. These locations were chosen for their dense concentration of SMEs from diverse sectors, providing a rich environment for assessing the adoption of sustainable practices across different business models and community settings.

A total of 30 respondents participated in the study,

selected through purposive and snowball sampling techniques [26]. Purposive sampling ensured the inclusion of participants from key sectors with a direct interface with environmental sustainability (e.g., manufacturing, agriculture, tourism). Snowball sampling was then employed to access additional participants within business networks who were knowledgeable about the phenomenon, a method particularly effective for reaching SMEs that may not be listed in formal directories [27].

Data were collected using an interview guide and an observation checklist [28–30]. The interview guide covered key themes including: (a) awareness and understanding of green orientation and sustainability; (b) perceived benefits and challenges of adopting green practices; (c) factors influencing adoption decisions; and (d) the role of external support and policy. The observation checklist was used to physically assess business premises for evidence of sustainable practices (e.g., waste management systems, energy-efficient equipment, use of sustainable materials) and to note any discrepancies between reported and actual practices [31].

Data were analyzed thematically, allowing for the identification of key patterns and themes related to green orientation and sustainable business practices [32]. This approach ensured a comprehensive understanding of how businesses integrate sustainability within their operations in the Ndola District. The analysis of this data also aligns with the Diffusion of Innovation Theory, which posits that the adoption of new practices depends on factors such as knowledge, compatibility, and perceived benefits. In this case, challenges such as the lack of awareness and support mechanisms significantly hamper the diffusion of green practices among SMEs in Ndola.

To enhance the integrity and validity of the findings, member checking was conducted with a subset of participants. In addition, peer-debriefing sessions were held with colleagues familiar with the research context. Furthermore, ethical considerations, including informed consent, confidentiality, and participant anonymity, were rigorously observed throughout the study [33].

5. Results and Discussion

The data presented in this section were collected through observations and in-depth interviews with participants from different sectors within Ndola District, Zambia. The results of this study are presented thematically with light quantification and narrative reporting. The selected sectors are shown in **Table 1**.

Table 1. Sectors of Sustainable Business in Ndola.

S/N	Type of Sector	Participants	Percentage
01	Manufacturing	05	17%
02	Tourism	04	13%
03	Agriculture	06	20%
04	Retailing	08	27%
05	Wholesaling	05	17%
06	Copperbelt Development Foundation (CDFL)	01	3%
07	Medium-scale businessman	01	3%
Total		**30**	**100%**

As shown in **Table 1**, the study included participants from five major business sectors inclined toward green orientation: manufacturing (17%), tourism (13%), agriculture (20%), retailing (27%), and wholesaling (17%). To ensure a broad and reliable perspective, the study also included an officer (3%) from the Copperbelt Development Foundation Limited (CDFL), a non-governmental organization based in Kitwe that champions sustainable development initiatives. Among the respondents was a medium-scale businessman (3%) who has been operating in the wood processing sector for over 14 years. The analysis explores this businessman's responses, supported by physical observation of his business premises, focusing on the themes of environmental awareness, sustainability, and implemented green practices.

5.1. Ineffective Methods and Green Illiteracy

During the interview, the businessman described the primary role of his wood processing business as:

We are in the business of creating finished

> *wood products such as furniture and flooring, converting raw wood into higher-value products that can be used in construction and furniture making.*

When asked if he was familiar with the concept of green business practices, the respondent confirmed his awareness. Furthermore, when probed about the importance of environmental sustainability to his business operations, he stated:

> *It is crucial; wood harvesting can lead to deforestation and habitat loss if not managed sustainably. Over-harvesting can deplete wood resources.*

However, when asked whether any green initiatives had been implemented within his business, the respondent noted:

> *We have initiated a few initiatives.*

Upon request for specific examples, he struggled to provide details and required guidance. Eventually, he mentioned:

> *Find market, repurpose, or donate furniture pieces that are no longer needed or can be refurnished.*

Despite this claim, direct observation of the business premises revealed a large heap of unused wood pieces, suggesting that waste reduction and repurposing practices are not effectively or consistently implemented. This contradiction between stated intentions and observed practices highlights a possible gap between awareness and action in the adoption of sustainable practices. The data gathered from this respondent reflects a broader issue observed among medium-scale enterprises in the Ndola district: while there is some level of awareness about environmental sustainability and green business practices, actual implementation remains limited and inconsistent. This contrasts with what Anuradha et al.[10] referred to as business sustainability, which involves strategies and actions that ensure long-term business viability while minimizing negative environmental and social impacts.

The businessman's acknowledgment of deforestation and over-harvesting as critical environmental issues illustrates a surface-level understanding. However, the inability to clearly articulate or demonstrate specific green initiatives points to a lack of structured planning or commitment towards sustainable practices. His example of repurposing or donating furniture pieces, while commendable, appears reactive rather than part of a well-integrated waste management strategy. The visible heap of discarded wood outside his facility serves as physical evidence of inefficiencies in waste minimization and resource optimization. This observation contradicts the business owner's claims and suggests that sustainable forestry management principles, such as controlled harvesting, replanting, or sourcing from certified suppliers, are either poorly understood or not practiced at all.

Table 2 below highlights the major challenges hindering the implementation of green orientation to uphold sustainable business in Ndola District:

Table 2. Challenges of Green Orientation Implementation.

S/N	Type of Challenge	Frequencies	Percentage
01	Limited technical knowledge	12	40%
02	Lack of regulatory enforcement	8	27%
03	Financial constraints	4	13%
04	Minimal stakeholder pressure	6	20%
Total		**30**	**100%**

Based on **Table 2**, the study highlights a key challenge: awareness alone does not automatically lead to sustainable behavior. The research participants identified the major factors hindering the implementation of green orientation knowledge as follows: limited technical knowledge (40%), lack of regulatory enforcement (27%), financial constraints (13%), and minimal stakeholder pressure (20%). These challenges contribute to an implementation gap, with limited technical knowledge being the foremost barrier.

Although the respondent from the wood processing sector demonstrated some understanding of green orientation, there was a clear deficiency in the practical application of sustainable business practices across almost all business sectors. The results in **Table 2** suggest a need for targeted awareness

programs, training in sustainable forestry management, and the development of industry-specific green practice guidelines. Additionally, partnerships with organizations like the Copperbelt Development Foundation Limited could play a significant role in bridging the knowledge-to-practice gap through mentorship, resource support, and policy advocacy.

5.2. Untrained Staff and Ignorant Customers

This theme represents a weak link in sustainability efforts. An interview with a lodge owner, referred to as Businessman R, provided valuable insight into the awareness and application of green orientation within the small-scale hospitality sector. Initially, when asked if she was aware of the concept, the owner admitted unfamiliarity, stating:

> *I am not familiar with the concept, though to some extent I follow its demands from what you have told me.*

This response highlights a critical gap in knowledge and understanding among small business operators. This result aligns with Bassen [16], who observes that many African businesses, including those in Zambia, face numerous challenges in implementing green orientation, such as limited access to green technologies, a lack of financial incentives, and knowledge gaps. The study also suggests that while the terminology and structured understanding of sustainability may be lacking, some businesses may already be practicing elements of sustainable behavior instinctively or as part of general cost-saving strategies.

Upon further explanation of green orientation, Businessman R recognized aspects of her business operations that could be considered sustainable. This suggests that awareness-building efforts can play a crucial role in helping business owners connect their existing practices to broader environmental goals. When asked about the importance of environmental sustainability to the business, the lodge owner acknowledged its relevance, remarking:

> *Lodges generate waste, including food waste, packaging, and chemicals, which can harm the environment if not properly managed.*

This acknowledgment points to an emerging consciousness about the ecological impact of hospitality services, particularly regarding waste generation.

Despite limited awareness of formal sustainability concepts, the lodge owner described some practices already in place to manage waste. She stated:

> *We have partnered with waste management services and also emphasize the use of reusable products such as cloth towels, linens, and water bottles.*

These measures indicate a willingness to engage in environmentally responsible behavior, though the strategies are somewhat limited in scope and may lack alignment with broader sustainability frameworks, leading to inconsistent implementation as observed by Mukosha [19]. Such practices represent initial, low-cost steps often seen in small businesses, where the focus tends to be on visible, manageable activities rather than comprehensive sustainability planning.

However, several significant barriers hamper deeper engagement with green practices. One major challenge identified was cost. Businessperson R reported that:

> *The cost of sustainable materials such as eco-friendly linens or locally sourced furniture may be more expensive than conventional options.*

This perception and likely reality of higher upfront costs for sustainable products present a serious obstacle for small enterprises operating on tight budgets. Without external support or financial incentives, many businesses are unlikely to prioritize sustainability over more pressing economic concerns.

A second key barrier is the lack of supportive policy frameworks. The lodge owner explained:

> *There are no incentives for sustainable tourism practices.*

This statement points to a policy vacuum in which businesses lack motivation to pursue environmentally friendly practices, especially when such actions do not yield immediate economic benefits. This analysis correlates with Phiri [20], who argues that the informal sector in Zambia represents a large proportion of the economy, but those involved in business are not usually motivated to promote sustainability. The absence of government-led incentives or recognition for sustainable businesses may contribute to the perception that green practices are optional rather than integral to modern business operations.

Educational and behavioral challenges were also cited. Businessperson R expressed difficulty in fostering awareness among both staff and customers, stating:

> *Educating guests and members of staff on waste management is quite hard, especially for guests.*

This reveals a practical obstacle in the form of limited environmental literacy. Guests, who are diverse in background and transient, may not readily comply with waste separation, energy conservation, or other sustainable behaviors unless clearly guided and motivated. Similarly, staff may lack the necessary training or understanding to implement and monitor sustainable procedures effectively. This analysis agrees with Guo et al.[7], who observes that businesses with limited environmental literacy often overlook the benefits of integrating green, clean, and smart technologies; instead, they focus primarily on profitability and sustaining operations.

Financial instability and operational disruptions, particularly due to inconsistent electricity supply, emerged as another major constraint. The lodge owner stated:

> *We have limited budgets and competing priorities, making it challenging to allocate funds for green practices. Managing cash flow during times of load shedding can be challenging to invest in green practices.*

A bakery owner echoed this theme. He stated:

> *During times of load shedding, the bakery may prioritize short-term needs such as maintaining production over long-term investments in green practices. Regular maintenance and repair of equipment, including generators, can add to operational costs.*

These responses point to a larger systemic issue where infrastructural weaknesses like erratic power supply undermine the capacity of small businesses to adopt long-term sustainability measures. Instead, they are forced to focus on immediate survival needs, diverting both attention and resources away from green initiatives.

The analysis reveals a complex interplay of awareness, economic, infrastructural, and policy-related factors that affect the adoption of green orientation in small hospitality and food service businesses. While there is some basic awareness of environmental responsibility, it is largely informal and unstructured, which agrees with Okpara & Idowu[15], who shows a gradual adoption of green business practices in countries such as South Africa and Nigeria. It can be argued that awareness of green environmental practices remains a challenge in Zambia. The primary barriers include high costs, lack of policy support, difficulty in educating stakeholders, and operational challenges during periods of energy instability. For sustainability to be meaningfully adopted, a concerted effort from multiple stakeholders—including government, industry associations, and civil society is needed to provide training, financial incentives, infrastructural support, and clear policy direction. Only through such a multifaceted approach can small businesses like lodges and bakeries fully integrate green orientation into their operational models and contribute meaningfully to sustainable development.

5.3. Financial Constraints and Monitoring Void

An agro-dealer with over 11 years of experience in supplying agricultural inputs such as seeds, fertilizers, and pesticides revealed a practical yet complex understanding of green orientation. The respondent demonstrated clear awareness of environmentally sustainable practices and their relevance to agriculture. His ability to define green practices correctly indicates foundational knowledge, suggesting that some stakeholders in the agribusiness sector are aware of sustainability imperatives. When asked about the importance of environmental sustainability to his business, he stated:

> *This business depends on natural resources. If we do not conserve, there will be no future for agriculture.*

This response reflects an intrinsic understanding of the symbiotic relationship between nature and agribusiness. However, while the dealer acknowledged the value of green practices, he emphasized several structural and institutional challenges. One of the most pressing issues was the lack of government support:

> *We lack support from the government to offer incentives such as tax credits or grants to support the adoption of green practices.*

This underscores a gap in policy implementation, par-

ticularly the absence of financial mechanisms that can encourage green transitions. Although the dealer mentioned the existence of some grants, he quickly added:

> *...grants are there, but not for all of us, and not particularly for green practices. If there are some for green practices, then I don't know.*

This reflects the perception that green financing remains inaccessible or insufficiently targeted, limiting broader adoption. Additionally, the dealer highlighted a significant challenge related to stakeholder expectations:

> *It is difficult to manage the expectations of various stakeholders, including customers, suppliers, and investors, regarding sustainability.*

This suggests that green orientation is not only about internal operations but also about navigating complex external pressures. Another key challenge mentioned was the:

> *Lack of technical expertise to implement and maintain benefits and green technologies*

This points to a knowledge and skills gap within the sector. Without the necessary training or access to technical support, many agro-dealers may find it difficult to implement sustainable business practices effectively, despite their willingness to do so. This reflects the argument raised by Mukosha[19] regarding inconsistencies in implementing environmental sustainability.

Operationally, the Agro-dealer described modest but practical waste management efforts. He stated:

> *We buy products in bulk to reduce packaging waste. We also ensure safe disposal of hazardous waste such as pesticides and fertilizers through designated collection programs.*

These actions illustrate a proactive approach to reducing environmental harm, even in the absence of formal systems or policies. Such practices reveal the dealer's commitment to minimizing ecological footprints through feasible and context-specific measures.

Regarding the motivation for adopting green practices, the dealer stated:

> *We recognize the importance of conserving natural resources such as water and soil for future generations.*

This response reflects an ethical and intergenerational view of sustainability, where resource preservation is not just a business concern but a moral responsibility. While this motivation is admirable, it is evident that without adequate institutional support, financial incentives, and technical expertise, the full potential of green orientation in local businesses may remain unrealized, which aligns with Bassen's[16] argument about the challenges African businesses face.

The data highlight a dual narrative: on one hand, there is awareness, commitment, and initiative; on the other, there are systemic challenges such as limited access to green financing, lack of government support, stakeholder pressure, and technical knowledge deficits. The insights from this agro-dealer reveal that sustainable business practices in Ndola's agricultural sector are shaped by both individual agency and broader structural conditions.

5.4. Stakeholder Neglect and Lax Regulations

In a separate interview conducted in Chipulukusu, insights from a wholesaler and a retailer shed light on the practical challenges faced by businesses in adopting green orientation practices. The wholesaler, who operates by purchasing products in bulk from manufacturers or suppliers, storing them in warehouses, and distributing them to retailers, underscored key financial and operational constraints. He explained:

> *We have limited budgets to allocate to sustainability initiatives. Implementing sustainable inventory management practices can be difficult, especially for products with varying shelf lives.*

This comment highlights a significant barrier in the form of constrained financial resources, which limits the ability to invest in environmentally friendly technologies or processes. Moreover, the mention of product shelf life points to the complexity of managing stock sustainably, especially with perishable or seasonal goods. Green practices like reducing waste or improving storage efficiency become challenging with such variables.

From the retailer's perspective, whose role involves selling directly to end-users, the difficulties are more relational and strategic. One retailer pointed out:

> *It is difficult for us to engage other stakehold-*

> *ers, such as employees, suppliers, and customers, in sustainability initiatives. We also struggle to balance sustainability goals with profitability.*

This reflects a common tension in small-scale business environments where sustainability is often seen as secondary to financial viability. The challenge of stakeholder engagement, as supported by Dipietro et al.[8], indicates a broader issue of communication and shared vision within the business ecosystem. Without buy-in from all parties, sustainability efforts can become fragmented or ineffective. Furthermore, the trade-off between profitability and sustainability underlines the practical dilemma many small businesses face: while they may be aware of the importance of green practices, they often lack the flexibility to implement them without jeopardizing their economic survival.

Collectively, these insights from Chipulukusu reinforce that while there is a growing awareness of green orientation among wholesalers and retailers, its implementation is hindered by a mix of financial, logistical, and social factors, as expressed by scholars Guo et al.[7], Mukosha[19], and Phiri[20]. The findings illustrate that for green orientation to take root meaningfully, targeted support such as financial incentives, training in sustainable practices, and multi-stakeholder engagement strategies is needed to help businesses overcome these systemic challenges.

5.5. Policy Paralysis and Enforcement Gap

In an interview with an officer from the Copperbelt Development Foundation Limited (CDFL), an NGO based in Kitwe, key challenges hindering the implementation of green practices among SMEs were brought to light. The officer emphasized that most SMEs lack the necessary knowledge and skills to implement sustainable practices. This points to a significant gap in awareness and technical expertise, as many business owners may not fully understand what green practices entail or how to apply them effectively. Moreover, these businesses often lack the financial capacity and resources needed to adopt sustainable technologies or to hire qualified personnel to guide such transitions, which is similar to the results of Papadas[3]. These limitations significantly constrain their ability to move toward environmentally friendly practices.

In addition to internal challenges, the officer highlighted external systemic barriers, particularly weaknesses in the policy and regulatory framework. The results of this study show that existing environmental policies and regulations in Zambia are insufficient and poorly enforced, making it difficult to promote and support the adoption of green orientation among businesses, which agrees with Mukosha[19]. The lack of effective enforcement means that non-compliance carries minimal risk, reducing the motivation for SMEs to adopt sustainable practices. Furthermore, there appears to be a lack of supportive mechanisms, such as financial incentives or technical assistance programs, which could otherwise encourage SMEs to embrace green innovation.

6. Discussion

This study set out to investigate the challenges of implementing green orientation among SMEs in Ndola District, using the Diffusion of Innovation (DOI) Theory as a guiding framework. The findings reveal a complex adoption landscape that both aligns with and challenges traditional diffusion models. Thematic analysis identified a pervasive awareness-implementation gap, where knowledge of sustainability rarely translates into action. Within the DOI framework, this signifies a breakdown in the persuasion and decision stages of the innovation-decision process[22]. SMEs are often aware, that is, they are knowledgeable, but are not convinced of the relative advantage or compatibility of green practices due to overwhelming financial and technical constraints.

Furthermore, the findings extend the DOI theory by underscoring that in contexts of significant resource scarcity, the categorization of adopters is less a function of innate innovativeness and more a consequence of structural enablement. The few ‘innovators’ and ‘early adopters’ identified in this study were those who had somehow accessed external support or operated in sectors where sustainability offered immediate cost savings, such as energy efficiency. For the majority, who would be classified as the ‘late majority’ or ‘laggards,’ their resistance is not primarily cultural but economic and institutional. The weak communication channels, like ineffective policy dissemination, lack of business association leadership, and social system, such as minimal stakeholder pressure, lax regulations, fail to create the necessary impetus for adoption. This suggests that for the DOI theory

to be fully applicable in developing economy SME contexts, it must be integrated with models that account for severe resource limitations and weak institutional enforcement.

7. Conclusions

This study set out to investigate the adoption of green orientation and sustainable business practices among small and medium-sized enterprises (SMEs) in Ndola District, Zambia. Using a qualitative approach grounded in the constructivist paradigm and informed by the Diffusion of Innovation Theory, the study revealed significant gaps in both awareness and implementation of green practices among SMEs. The findings show that while there is increasing global and national discourse on environmental sustainability, these conversations have not yet fully translated into meaningful action at the grassroots level, particularly among SMEs, who form the backbone of the local economy.

The study found that the majority of SME owners in Ndola lack basic knowledge about green practices, as well as the technical expertise required to implement and maintain green technologies. This lack of understanding significantly hinders progress towards sustainable business models. Businesses dealing with environmentally risky products, such as agricultural chemical dealers, often lack systems for the safe disposal of hazardous waste like pesticides and fertilizers. Furthermore, packaging waste remains a major concern, with minimal effort made to adopt biodegradable or environmentally friendly packaging options. The limited capacity to manage waste, coupled with the absence of deliberate policy interventions, underscores the urgent need for a more structured and inclusive approach to green transformation.

This study reveals a dual-layered problem: internal business limitations related to knowledge and capacity, and external barriers stemming from weak institutional support. Addressing these challenges requires a coordinated approach that includes building the capacity of SMEs through targeted training and awareness programs, as well as reforming policy frameworks to be more inclusive and supportive.

The paper has explored the extent to which SMEs in Ndola District are engaging with green orientation and sustainable business practices. Grounded in the Diffusion of Innovation Theory and framed within a constructivist paradigm, the study reveals that although there is a growing awareness of environmental concerns among some businesses, the overall adoption of sustainable practices remains limited. Data collected through interviews and observations indicate that a significant number of SMEs lack the knowledge, skills, and resources necessary to implement environmentally friendly practices. This lack of capacity is further compounded by systemic challenges such as inadequate policy support, weak enforcement of existing regulations, and the absence of targeted incentives to encourage green innovation.

Findings from the Copperbelt Development Foundation Limited reinforce these conclusions, highlighting a widespread lack of expertise and practical skills among business owners, as well as financial constraints that prevent investment in sustainable alternatives. Additionally, the existing regulatory framework is insufficient to support the transition toward green business practices. Where policies do exist, they are not effectively enforced, thus failing to create a conducive environment for SMEs to embrace sustainability. These challenges are not only technical but also structural, suggesting that sustainable development in the SME sector requires both internal transformation and external institutional support.

Importantly, the findings also reveal a significant knowledge gap not only among business owners but within the wider community. The lack of public awareness and grassroots engagement in green practices contributes to the slow uptake of sustainable methods. Many customers and community members are unaware of their role in environmental stewardship, and as a result, they are rarely involved in initiatives such as waste segregation, recycling, or responsible consumer behavior. The study therefore emphasizes the importance of community-wide training and public education campaigns that include customers, not just business owners. Such programs could help foster a culture of sustainability and create shared responsibility for environmental protection.

Based on the findings of this study, several recommendations are proposed to help overcome the identified challenges of implementing green orientation and sustainable business practices in Ndola District, Zambia. Below are the recommendations:

i. There is a critical need to design and implement targeted training programs for SME owners and their employees on green business practices. These should

cover areas such as waste management, energy efficiency, use of biodegradable materials, and sustainable sourcing.

ii. Businesses, especially those dealing with chemicals and hazardous materials, should adopt environmentally responsible practices such as using biodegradable packaging and ensuring the safe disposal of harmful substances through designated collection programs.

iii. Government and local authorities must establish and enforce clear policies that support green business practices, including incentives for businesses that adopt sustainable methods and penalties for non-compliance. Additionally, deliberate efforts must be made to engage the public in waste management for recycling purposes. This includes initiating grassroots awareness campaigns, involving communities in clean-up and recycling initiatives, and promoting eco-friendly consumer habits. Customer education should become an integral part of business practice, where businesses sensitize their clients on the sustainable use and disposal of products. Empowering communities with knowledge and creating a sense of ownership can integrate sustainability into the social fabric of everyday life.

iv. Policy reform is essential. Government agencies should review and strengthen environmental policies to make them more inclusive of SMEs, with clear guidelines, measurable outcomes, and robust enforcement mechanisms. In addition, policies should be complemented by incentive structures, such as tax relief or public recognition programs, to reward businesses that demonstrate commitment to sustainable practices.

Considering the results of the study, it is evident that promoting green orientation and sustainable business practices among SMEs in Ndola District requires a collaborative effort involving policymakers, support institutions, business owners, and the broader community. With the right combination of education, support, and regulation, SMEs can become key players in Zambia's sustainable development agenda, contributing not only to environmental preservation but also to long-term economic resilience and social well-being.

Therefore, the shift towards green orientation in Ndola's SME sector requires a holistic, inclusive, and sustained approach. It is not enough to introduce policies at the top; action must be taken at every level of society, from policymakers to business owners, employees, and consumers. With strategic training, policy support, public participation, and a shared commitment to sustainability, SMEs in Ndola and beyond can become pivotal drivers of Zambia's transition to a greener and more sustainable economy. Enforcement mechanisms and introducing incentives such as tax relief or grants for green investments would further enhance the uptake of sustainable practices.

Author Contributions

Two authors were involved in writing this paper. N.B. conducted the investigation, collected data, dealt with methodology, wrote the literature review, and presented the findings. N.B. also handled the introduction and part of the theoretical framework. P.S. dealt with the conceptualization of the study, validated data collection tools, organized data and typesetting, and organized and ordered the references according to the journal's requirements. P.S. also performed a formal analysis of the data, wrote the original draft paper, did the final writing of the article (review, editing), and the final revision/corrections after receiving the reviewer's comments, including writing the letter for the corrections and revisions made to the final manuscript. Both authors have agreed to publish the manuscript in this journal.

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Institutional Review Board Statement

The study did not require ethical approval from the institution because it did not involve human beings and their privacy, but the challenges faced during the implementation of green orientation.

Informed Consent Statement

This section is not applicable because the study does not concern humans or animals directly, but rather green

orientation practices.

Data Availability Statement

This is a new study; hence, there are no links to available data that can be provided.

Conflicts of Interest

The authors declare no conflict of interest in this study.

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