

Article

Not peer-reviewed version

Technological Characteristics and Socio-Economic Impacts of Green Practices Adoption: A Case Study of a Manufacturing Company in Ogun State, Nigeria

[Solaja Oludele](#) *

Posted Date: 18 December 2023

doi: [10.20944/preprints202312.1285.v1](https://doi.org/10.20944/preprints202312.1285.v1)

Keywords: Technological Characteristics; Socio-economic impacts; Green Practices; Development; Public Health



Preprints.org is a free multidiscipline platform providing preprint service that is dedicated to making early versions of research outputs permanently available and citable. Preprints posted at Preprints.org appear in Web of Science, Crossref, Google Scholar, Scilit, Europe PMC.

Copyright: This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Article

Technological Characteristics and Socio-Economic Impacts of Green Practices Adoption: A Case Study of a Manufacturing Company in Ogun State, Nigeria

Oludele Mayowa Solaja

Department of Sociology, Olabisi Onabanjo University, Ago-Iwoye, Nigeria; postgraduatescholar@gmail.com

Abstract: The study provide insights into the technological characteristics of green practices adoption and the potential benefits they offer in terms of socio-economic development, environmental and public health. The study adopted a cross-sectional research design. A structured questionnaire was developed to collect quantitative data from the participants. The questionnaire include closed-ended questions, Likert scale items, and demographic questions. Both stratified and simple random sampling techniques were employed to select the study participants (government officials, employees, managers, and community members). A total of 321 copies of questionnaires were duly filled and returned. The collected data were analyze using descriptive statistics, such as frequencies, percentages, mean, and standard deviation, were used to summarize the data and provide an overview of the key variables related to green practices adoption. The findings indicate that the manufacturing company in Ogun State, Nigeria, has shown moderate commitment to adopting green practices. While there is room for improvement in certain areas, such as waste-to-energy technologies and green building practices. Additionally, green practices have positively influenced employee well-being and community health, while aligning with the company's commitment to safeguarding the environment and public health.

Keywords: technological characteristics; socio-economic impacts; green practices; development; public health

Background

The issue of environmental degradation and the concomitant challenges posed by climate change has emerged as a matter of utmost global significance. These formidable obstacles, to a heightened degree, have exerted a profound impact on the trajectory of progress in both developed and developing nations. Nevertheless, in the relentless pursuit of sustainable development, the embrace of environmentally conscious methodologies is rapidly gaining traction as a fundamental avenue for ameliorating ecological ramifications and safeguarding the well-being of both current and forthcoming cohorts (Solaja & Adetola, 2018). Green practices encompass a diverse array of environmentally conscious actions, which encompass sustainable resource management, the utilisation of renewable energy sources, the reduction of waste, and the adoption of eco-friendly technologies (Geng et al., 2013; Khan et al., 2018). The empirical evidence regarding the implementation of environmentally sustainable practices has been duly recorded within certain developing nations. Nevertheless, it is imperative to acknowledge that the extent of such adoption is contingent upon a multitude of factors, including but not limited to industry-specific considerations, governmental regulations, and the prevailing cultural milieu within each respective country. In the Malaysian context, the embrace of ecologically conscious methodologies by manufacturing enterprises has been propelled by a mounting awareness of environmental concerns, the imposition of regulatory mandates, and the pursuit of sustainable objectives. Corporations are embracing energy-efficient technologies, implementing waste reduction strategies, and integrating renewable energy sources in order to ameliorate their ecological footprints. The scholarly work conducted by Abdul-Rahim and colleagues (2020) shed light on the significant impact of regulatory incentives and

the implementation of environmental management systems on the uptake of environmentally conscious practises within the manufacturing sector of Malaysia. In the vast expanse of China, the conscientious embrace of ecologically sustainable practises by manufacturing enterprises has emerged as a paramount concern, driven by the nation's formidable environmental predicaments. The Chinese government has diligently instituted a myriad of policies aimed at fostering and advancing environmentally conscious practises. These measures encompass the imposition of more stringent environmental regulations, provision of subsidies to bolster the adoption of green technologies, and active promotion of the principles underlying a circular economy. The scholarly work conducted by Zeng et al. (2019) elucidated the pivotal role played by governmental policies, corporate environmental performance, and green supply chain practises in fostering the adoption of environmentally conscious practises within the realm of Chinese manufacturing.

Furthermore, it is worth noting that within the context of Indonesia, the incorporation of environmentally conscious practises within the manufacturing sector has been shaped by a confluence of internal impetuses and external stimuli. The promotion of sustainability has been facilitated by the government through the implementation of regulatory frameworks and the provision of incentives. The study conducted by Sumiani et al. (2018) underscored the significance of governmental policies and heightened environmental awareness as pivotal catalysts for the adoption of environmentally-friendly practises within the Indonesian manufacturing sector. In the Philippine context, it is evident that manufacturing enterprises have exhibited a burgeoning inclination towards embracing environmentally conscious methodologies as an integral facet of their corporate social responsibility and sustainability endeavours. The proliferation of this phenomenon can be attributed to a confluence of factors, namely governmental incentives, the attainment of environmental certifications, and the discerning preferences of consumers who actively seek out eco-friendly products. The findings of a study conducted by Makilan et al. (2020) indicate that the adoption of green practises in the Philippines is positively influenced by both market pressure and government support. In the context of South Africa, it is noteworthy to observe that manufacturing enterprises are increasingly embracing ecologically conscious methodologies in order to effectively tackle environmental predicaments while simultaneously augmenting their competitive edge. The impetus for corporate investment in sustainable technologies stems from a confluence of factors, namely environmental regulations, carbon emissions reduction targets, and the potential for cost savings. The scholarly work conducted by Dass et al. (2017) elucidated the noteworthy impact of governmental policies and the cultivation of environmental awareness on the widespread adoption of eco-friendly practises within the realm of South African manufacturing. In the Kenyan context, there is a discernible surge in the embrace of ecologically conscious methodologies by manufacturing enterprises. This phenomenon can be attributed to the escalating cognizance surrounding environmental concerns and the manifold advantages associated with fostering sustainability. Corporations are currently engaged in the exploration of renewable energy alternatives, the implementation of waste reduction strategies, and the adoption of sustainable practises within their supply chains. The scholarly work conducted by Owiti et al. (2018) underscored the paramount significance of governmental policies and fiscal incentives in fostering environmentally conscious behaviours within the manufacturing sector of Kenya.

In the Nigerian context, the phenomenon of rapid urbanisation and industrialization has engendered a surge in environmental burdens, thereby engendering substantial perils to ecosystems, public health, and socioeconomic progress. The state of Ogun, situated in the southwestern part of Nigeria, serves as a prime illustration of the aforementioned predicaments. Ogun State grapples with the intricate challenge of harmonising economic expansion and ecological preservation, given its status as a prominent industrial centre and a significant contributor to Nigeria's agricultural domain. The state is home to a remarkable collection of over four hundred manufacturing companies, each passionately engaged in a wide range of environmentally conscious industrial and commercial activities that unfortunately also produce a significant amount of waste (both industrial and domestic). The economic endeavours undertaken by the manufacturing companies have resulted in a burgeoning predicament of environmental contamination and the exhaustion of valuable resources

(Adedokun et al., 2017; Okunola et al., 2021). Despite global awareness of environmental issues, the adoption of green practices in the region is slow, mainly due to a lack of knowledge, resources, and technology. This hinders effective implementation of environmentally friendly initiatives, jeopardizing socioeconomic development and well-being. The consequences include compromised public health, missed opportunities for job creation and economic growth, and hindrance to environmental entrepreneurship. Inadequate policies and lack of awareness among policymakers, enterprises, and communities further impede progress in adopting sustainable approaches. The study aims to investigate the technological, socioeconomic, and health impacts of embracing green practices in Ogun State.

Research Objectives

The general aim of this study is to examine the technological characteristics, socioeconomic effects, and health implications of green practices adoption in Ogun State, Nigeria. While the specific objectives are to:

- i. Investigate the technological characteristics of green practices adopted in Ogun State, Nigeria
- ii. Examine the socioeconomic implications of green practices adoption in Ogun State, Nigeria.
- iii. Assess the environmental health effects of green practices in Ogun State, Nigeria

Literature review

The Concept of Green Practices

The concept of green practices, alternatively referred to as sustainable practices or eco-friendly practices, encompasses a range of actions and behaviours that are rooted in environmental consciousness. These practices are designed to address and alleviate adverse environmental effects, while simultaneously fostering ecological equilibrium and bolstering social and economic welfare (United Nations, 1987; World Commission on Environment and Development). The implementation of these practices plays a pivotal role in effectively tackling urgent environmental issues, including climate change, pollution, and resource depletion. Moreover, they are indispensable for attaining the objectives of sustainable development as highlighted by Leire et al. (2021) and Sharma & Deshmukh (2018). The concept of green practices is characterised by a diverse array of actions and strategies that place emphasis on the efficient utilisation of resources, the minimization of waste, and the adoption of renewable resources and clean technologies (Agbejule, 2016; Fuior & Puia, 2017). The optimisation of resource utilisation entails the implementation of various practices and technologies aimed at mitigating resource consumption and waste generation, thereby resulting in a notable reduction in the overall environmental impact (Agbejule, 2016). Renewable energy sources, including solar, wind, and hydropower, have emerged as prominent contenders in the realm of sustainable practices. These sources present viable alternatives to conventional fossil fuels, thereby mitigating the release of greenhouse gases and fostering climate resilience (Leire et al., 2021).

Waste reduction and recycling are integral facets of environmentally conscious practices, with the primary objective of mitigating the volume of waste directed towards landfills and fostering the principles of a circular economy (Sharma & Deshmukh, 2018). The implementation of waste separation, composting of organic materials, and utilisation of recycled materials in manufacturing and construction has been suggested by Fuior and Puia (2017). Sustainable agriculture practices play a crucial role in the implementation of green practices, with a particular focus on enhancing soil health, conserving water resources, and preserving biodiversity (Sharma & Deshmukh, 2018). According to the research conducted by García-Correa and Posso (2021), it has been established that organic farming, agroforestry, and integrated pest management play a significant role in mitigating environmental impacts and promoting food security. The incorporation of environmentally friendly technologies plays a pivotal role in the implementation of sustainable practices. This is evident in the utilisation of energy-efficient appliances, the integration of green building materials, and the adoption of eco-labeling. These measures collectively contribute to the promotion of sustainable

living and the mitigation of adverse environmental effects (Leire et al., 2021; Sharma & Deshmukh, 2018).

Furthermore, it is imperative to acknowledge the significant contribution of environmental conservation in the implementation of sustainable practises. This multifaceted approach encompasses the safeguarding of natural ecosystems, preservation of wildlife habitats, and the promotion of biodiversity (García-Correa & Posso, 2021). Conservation efforts play a crucial role in maintaining ecological equilibrium and mitigating the risk of biodiversity loss. These initiatives are designed to protect and preserve valuable species and ecosystems, thereby ensuring their long-term survival and functionality. The notion of green practises encompasses a broader scope that includes social responsibility, with a specific focus on fair labour practises, human rights, and social equity within the context of sustainability efforts. This concept has been acknowledged and discussed by reputable organisations such as the United Nations (1987) and the World Commission on Environment and Development. The imperative of guaranteeing a fair transition towards sustainable practises cannot be overstated, as it serves to mitigate adverse social consequences while simultaneously promoting inclusive economic development (Leire et al., 2021). The adoption and promotion of green practises have been extensively studied and have been found to play a crucial role in addressing environmental challenges and cultivating a society that is more sustainable and resilient (Fuior & Puia, 2017; García-Correa & Posso, 2021). The alignment of human activities with ecological balance is a fundamental principle that underlies the adoption of green practises. These practises, as highlighted by Agbejule (2016) and Sharma and Deshmukh (2018), play a crucial role in fostering a healthier planet for both present and future generations.

Technological Characteristics

The technological attributes associated with green practises are of utmost significance in facilitating the advancement of sustainable development and the preservation of the environment. The utilisation of cutting-edge and environmentally conscious technologies across diverse industries is integral to attaining optimal resource utilisation, mitigating ecological footprints, and fostering the adoption of greener production methodologies. Numerous scholarly investigations underscore the utmost importance of technological advancements in the realm of green practises, elucidating their profound implications for the promotion of sustainable development. One of the pivotal technological attributes associated with green practises pertains to the incorporation and utilisation of renewable energy sources. Multiple studies have provided evidence that the integration of renewable energy technologies, including solar photovoltaic systems, wind turbines, and hydropower plants, has the potential to yield substantial reductions in greenhouse gas emissions and decrease reliance on fossil fuels (González & Ramos-Martin, 2019; Shah et al., 2021). The implementation of renewable energy solutions in both industrial and residential settings is a crucial step towards enhancing energy efficiency and addressing the detrimental impacts of climate change.

An additional pivotal technological attribute pertains to the utilisation of energy-efficient appliances and equipment. According to recent research conducted by Jafar and Heng (2021) as well as Ang and Guo (2016), it has been found that the implementation of energy-efficient technologies in both residential and commercial environments has the potential to yield significant energy conservation and a subsequent decrease in carbon emissions. The reduction of energy consumption and environmental impact is facilitated by the progress made in LED lighting, smart thermostats, and energy-efficient motors. Precision farming technologies are a prominent technological aspect within the realm of agriculture, particularly in relation to the adoption of sustainable practises. The field of precision agriculture encompasses the application of various technologies such as sensors, data analytics, and GPS-guided machinery to enhance the efficiency and effectiveness of resource allocation in agricultural practises (Ghorbani et al., 2020; Han et al., 2019). Precision farming, also known as precision agriculture, is a modern approach that aims to optimise agricultural practises by employing precise application of water, fertilisers, and pesticides. This method is designed to minimise the wastage of resources, improve crop yields, and mitigate the environmental impact associated with conventional farming techniques. By utilising advanced technologies and data-

driven decision-making processes, precision farming seeks to maximise the efficiency and effectiveness of agricultural operations. Through the precise application of inputs, such as water, fertilisers, and pesticides, this approach aims to minimise unnecessary resource usage while ensuring optimal crop growth and development. Consequently, precision farming offers promising prospects for sustainable agriculture by reducing resource wastage and minimising the environmental footprint of agricultural activities.

Furthermore, it is worth noting that waste reduction technologies play a crucial role in the implementation of environmentally friendly practises. The implementation of advanced recycling technologies, such as waste-to-energy conversion and the adoption of circular economy principles, has been found to have significant benefits in terms of resource recovery and the reduction of landfill waste (Geyer et al., 2017; Upadhyay et al., 2020). The aforementioned technologies play a pivotal role in enhancing the sustainability of waste management systems and facilitating the shift towards a circular economy. Green building technologies are an embodiment of a pivotal technological attribute within the realm of sustainable practises. The utilisation of sustainable construction materials, coupled with the implementation of energy-efficient building designs and the integration of renewable energy sources, has been observed to result in a notable reduction in both energy consumption and environmental impact of buildings (Ochoa et al., 2020; Teli et al., 2020). Research has demonstrated that the implementation of green buildings has been associated with a reduction in carbon emissions, an enhancement of indoor air quality, and an improvement in the health and well-being of occupants. In a nutshell, it can be stated that the technological attributes associated with green practises encompass a diverse array of pioneering and environmentally conscious technologies that play a significant role in fostering sustainable development and the preservation of the natural environment. The incorporation of renewable energy sources, energy-efficient appliances, precision farming technologies, waste reduction solutions, and green building technologies represents pivotal technological factors that propel the adoption of sustainable practises. The empirical evidence presented in various scholarly works, including those by González and Ramos-Martin (2019), Ang and Guo (2016), Ghorbani et al. (2020), and Geyer et al. (2017), showcases the tangible benefits associated with the adoption and utilisation of these technologies. These benefits encompass a substantial reduction in environmental impacts, an improvement in resource efficiency, and a significant contribution towards the realisation of a more sustainable future.

Socioeconomic Implications of Green Practices Adoption

The adoption of green practises carries profound socioeconomic ramifications that reverberate throughout diverse sectors, exerting influence on communities, enterprises, and governing bodies alike. The adoption of environmentally conscious practises has the potential to yield favourable consequences for the economy, as it can serve as a catalyst for economic expansion and engender novel avenues for employment. Numerous scholarly investigations have demonstrated that allocating resources towards sustainable energy initiatives and endeavours aimed at enhancing energy efficiency possess the capacity to stimulate economic growth and engender job opportunities across various sectors, including manufacturing, construction, and the production of renewable energy sources (Labonne & Chasek, 2015). The proliferation of the green economy has the potential to engender the emergence of environmentally conscious occupations, thereby presenting viable employment opportunities and bolstering both local and national economic affluence.

The embrace of environmentally conscious practises not only engenders novel avenues for entrepreneurial pursuits but also serves as a catalyst for fostering ingenuity. Scholars have underscored the significance of adopting environmentally conscious technologies and sustainable methodologies, as they have the potential to cultivate a distinct market segment for enterprises that prioritise ecological considerations and promote the development of environmentally conscious entrepreneurship (Odozi & Chilaka, 2018). Green entrepreneurs have the potential to assume a pivotal position in the process of economic diversification, as they actively contribute to the cultivation of sustainable business models and the attraction of investments that prioritise environmental preservation and conservation. The adoption of environmentally conscious practises

has the potential to make significant contributions towards the alleviation of poverty and the enhancement of social equity. The findings of research conducted by the Organisation for Economic Co-operation and Development (OECD) in 2018 indicate that the implementation of sustainable practises has proven to enhance the availability of fundamental services, such as clean water and energy, within communities that have historically been marginalised. By amalgamating social and environmental objectives via the implementation of green practises, one can effectively mitigate social disparities and augment the overall well-being of populations that are particularly susceptible to vulnerability. The implementation of environmentally conscious practises presents lucrative prospects for both commercial enterprises and residential dwellings, as it enables the realisation of financial savings. Extensive research has unequivocally established that the implementation of energy-efficient technologies and the adoption of waste reduction measures have the potential to yield substantial financial benefits for enterprises (Thalang, 2021). Within domestic settings, the implementation of energy-conserving methodologies can effectively reduce the costs associated with utilities, thereby bestowing economic respite upon households. The adoption of green practises fosters societal resilience in the face of climate change and natural disasters, thereby bolstering risk mitigation efforts. Numerous scholarly investigations have shed light on the fact that the implementation of sustainable agricultural practises has the capacity to enhance the ability to withstand and adapt to severe weather phenomena, while simultaneously safeguarding the availability and accessibility of nourishing sustenance (Adedokun et al., 2017). The implementation of sustainable urban planning and the integration of green infrastructure within urban areas can effectively ameliorate climate-related risks.

The implementation of environmentally conscious practises yields favourable ramifications for the overall welfare and physical condition of the general populace. Extensive research has unequivocally demonstrated that the provision of green spaces and the integration of urban green infrastructure play a pivotal role in fostering enhanced mental well-being and physical health (Donovan & Van der Horst, 2013). Furthermore, the implementation of sustainable practises aimed at mitigating pollution yields a consequential enhancement in both air and water quality, thereby exerting a beneficial influence on the overall well-being of the community. Enterprises that embrace environmentally sustainable practises have the potential to attain a distinct edge over their competitors within the market landscape. Numerous scholarly investigations have elucidated that enterprises exhibiting robust environmental performance possess the capacity to penetrate novel markets, allure individuals who prioritise ecological concerns, and cultivate a favourable and esteemed corporate image (Bocanegra et al., 2018). In summation, the implementation of environmentally conscious measures carries extensive socioeconomic ramifications, exerting influence over various facets such as economic expansion, the generation of employment opportunities, the mitigation of poverty, the promotion of social fairness, financial savings, resilience, well-being, and market viability. The empirical data derived from pertinent research illuminates the profound capacity of environmentally conscious methodologies in fostering sustainable progress and augmenting the collective well-being of humanity. The adoption of environmentally conscious practises represents a strategic trajectory towards the establishment of a future that is both sustainable and equitable for various communities, businesses, and the natural world.

Health Effects of Green Practices

The significance of incorporating green practises, encompassing eco-friendly and sustainable approaches, in relation to human well-being and the mitigation of environmental health risks is progressively gaining recognition. The implementation of environmentally friendly practises, such as urban greening initiatives, tree planting campaigns, and the reduction of fossil fuel consumption, has been found to have a positive impact on air quality. These green practises effectively mitigate air pollution, leading to an overall improvement in the quality of the air we breathe. Additionally, this improvement in air quality has been observed to have a direct correlation with enhanced respiratory health among individuals exposed to these greener environments. According to a research conducted in Beijing, China, it was observed that the presence of enhanced urban green spaces exhibited a

correlation with a decrease in air pollutants and a decline in levels of particulate matter. These findings have significant implications for the improvement of respiratory health (Cao et al., 2018). In a study conducted in Barcelona, Spain, Dadvand et al. (2016) discovered a correlation between increased tree density in urban environments and a reduction in hospital admissions for respiratory diseases. The correlation between mental health and well-being and the availability of green spaces, such as parks and gardens, has been established in various studies. These investigations have consistently demonstrated a positive association between access to green spaces and improved mental health outcomes. According to a study conducted in England, it was found that individuals who were exposed to green spaces exhibited reduced levels of mental distress and reported higher levels of life satisfaction (White et al., 2013).

In a study conducted in the Netherlands, van den Berg et al. (2010) discovered a significant association between the proximity to green spaces and a reduced likelihood of experiencing anxiety and depression. The promotion of active transport and the provision of accessible green spaces have been identified as effective strategies in enhancing physical activity levels and preventing obesity. By adopting green practises that prioritise these aspects, individuals are more likely to engage in regular physical activity, thereby reducing the risk of obesity. In a research conducted in Bogotá, Colombia, Sarmiento et al. (2010) discovered that the introduction of a greenway network had a positive impact on the level of physical activity exhibited by the local population. In the context of the United States, empirical evidence has indicated a correlation between the proximity of individuals to parks and green spaces and a decrease in the prevalence of obesity (Lovasi et al., 2011). Moreover, the implementation of green practises, such as urban greening and cool roof initiatives, has demonstrated potential in mitigating the urban heat island effect, consequently diminishing the susceptibility to heat-related illnesses. According to a study conducted in Chicago, USA, it was observed that the implementation of green roofs and cool roofs resulted in a notable decrease in the occurrence of heat-related deaths and hospitalisations specifically during heatwaves (Jin & Shepherd, 2018). In summary, the implementation of environmentally friendly practises yields a multitude of health advantages. These encompass the amelioration of air quality and respiratory well-being, the augmentation of mental equilibrium, the promotion of physical exertion, and the mitigation of susceptibility to heat-related ailments. The existing body of research underscores the significance of incorporating environmentally friendly strategies into urban planning and community development endeavours. This integration is crucial for fostering improved health outcomes and establishing sustainable and habitable environments (Cao et al., 2018; Dadvand et al., 2016; White et al., 2013; van den Berg et al., 2010; Sarmiento et al., 2010; Lovasi et al., 2011; Jin & Shepherd, 2018).

Technological Innovations for GP adoption by Manufacturing Companies in Nigeria

Nigerian manufacturing companies are progressively embracing energy-efficient technologies as a means to curtail energy consumption and mitigate greenhouse gas emissions. Energy-efficient lighting systems, such as Light Emitting Diodes (LEDs), have experienced a surge in popularity in recent years. This can be attributed to their notable advantages, including reduced energy consumption and extended operational lifespan (Oyedepo & Adaramola, 2017). In addition, it is worth noting that the implementation of Variable Frequency Drives (VFDs) has led to the optimisation of industrial processes. These drives effectively regulate motor speeds and power consumption in accordance with the prevailing demand, thereby yielding significant energy conservation benefits (Bamidele & Nwoye, 2019). The adoption of environmentally friendly practises within the manufacturing sector in Nigeria encompasses the incorporation of waste reduction and recycling technologies. The implementation of recycling initiatives has been utilised as a means to repurpose waste materials that are generated throughout various production processes. This approach serves the purpose of mitigating the accumulation of waste in landfills, while also contributing to the conservation of valuable natural resources (Ilozor et al., 2021). Waste-to-energy technologies, such as anaerobic digesters, have been employed by various companies to facilitate the conversion of organic waste into biogas and fertiliser, thereby endorsing the principles of a circular economy (Akinyele et al., 2020).

The adoption of water conservation technologies has emerged as a critical imperative for manufacturing companies in Nigeria, who are grappling with the twin challenges of water scarcity and escalating water expenses. The implementation of rainwater harvesting systems has been observed as a means to effectively gather and retain rainwater for various non-potable applications, such as the facilitation of cooling and cleaning procedures (Ukandu et al., 2021). In addition, it is worth noting that water recycling systems, such as greywater treatment plants, are utilised in order to effectively treat and repurpose water derived from diverse processes. This practise serves the purpose of mitigating water consumption and minimising the generation of wastewater (Ogbuchi et al., 2021). Nigerian manufacturing companies are exhibiting a growing inclination towards the adoption of green supply chain technologies as a means to bolster sustainability within their supply networks. The utilisation of Radio Frequency Identification (RFID) technology has been observed to facilitate the real-time monitoring and tracking of various materials and products. This technology has proven to be particularly effective in optimising logistics operations and mitigating transportation-related emissions (Ibemesi & Ukandu, 2018). In addition, the utilisation of blockchain technology has been investigated as a means to establish and maintain transparency and traceability within supply chains, thereby fostering the adoption of responsible sourcing practises (Ibemesi & Ekenta, 2019).

Methodology

The research design employed in this study was a cross-sectional approach. The present design facilitates the collection of data at a specific moment, thereby offering a glimpse into the prevailing state of green practises adoption in Nigeria and Ogun State. Data from respondents was collected using a structured questionnaire. The study employed multi- sampling technique to select the participants for the research. The selected individuals included government officials, employees, managers, and community members. A meticulously designed structured questionnaire was formulated with the primary objective of gathering quantitative data from the participants. The questionnaire comprises a series of closed-ended questions, Likert scale items, and demographic inquiries. The research primarily centres around various dimensions, including the extent of implementation of diverse environmentally friendly practises, factors that impede or promote their adoption, and individuals' perspectives on the efficacy of current policies and initiatives. A comprehensive dataset consisting of 321 questionnaires was successfully collected, with each questionnaire being diligently completed and promptly returned. The pilot-testing of the questionnaire was conducted with a limited number of participants in order to assess and confirm the clarity, validity, and reliability of the instrument. Based on the findings from the pilot test, essential modifications were implemented. The data were obtained through the administration of surveys. The data that had been gathered were subsequently inputted into a statistical software package in order to conduct the analysis. The data was summarised and key variables related to green practises adoption were provided an overview using descriptive statistics. These statistics included frequencies, percentages, mean, and standard deviation. The data collection process adhered rigorously to ethical principles, encompassing key tenets such as informed consent, confidentiality, and voluntary participation. The study received ethical approval from the appropriate institutional review board.

Research Findings

Table 1. Socio-Demographic variables of the Respondents.

Variables	Option	Frequency	Percentage
Gender	Male	238	74.1
	Female	83	25.9
	Total	321	100.0
Age range	Option	Frequency	Percentage
19-23yrs	46	14.3	

Level of Education	24-28yrs	80	24.9
	29-33yrs	48	15.0
	34-38yrs	93	29.0
	39-43yrs	33	10.3
	44yrs and above	21	6.5
	Total	321	100.0
Years spent residing in the community or working in the organization	Option	Frequency	Percentage
	Primary education	21	6.5
	Secondary education	63	19.6
	NCE/OND	166	51.7
	HND/ B.Sc. degree	65	20.2
	Others	6	1.9
Years spent residing in the community or working in the organization	Total	321	100.0
	Option	Frequency	Percentage
	Less than a year	75	23.4
	1-5yrs	121	37.7
	6-10yrs	100	31.2
	11yrs and above	25	7.8
Years spent residing in the community or working in the organization	Total	321	100.0

Source: Field Survey.

The provided table presents the distribution of participants categorised according to their gender. Among the cohort of 321 participants who took part in the study, a majority of 238 individuals (representing 74.1% of the total sample) self-identified as male. Conversely, a smaller subset of 83 individuals (constituting 25.9% of the total sample) identified themselves as female. The survey data indicates a notable disparity in gender representation, with a greater proportion of male respondents compared to their female counterparts. The provided data showcases the distribution of ages among the participants. The data reveals that a significant proportion of the participants, approximately 79.9% of the total sample, belong to the age bracket of 24-38 years. The age group of 34-38 years stands out as the largest cohort in our study, comprising 93 respondents, which accounts for approximately 29.0% of the overall sample. In contrast, it is noteworthy to mention that the cohort of participants aged 44 and above constitutes the most diminutive segment within the sample, encompassing a mere 21 individuals, which accounts for a mere 6.5% of the overall population. The majority of participants, specifically 166 individuals accounting for 51.7% of the total respondents, indicated that they had successfully attained NCE/OND qualifications. Accordingly, it is noteworthy to mention that out of the total sample size, 65 individuals, accounting for approximately 20.2% of the respondents, possess Higher National Diploma (HND) or Bachelor of Science (B.Sc.) degrees. The data reveals that among the respondents, individuals with secondary education constitute a significant proportion, comprising 63 respondents or 19.6% of the total sample. Conversely, individuals with primary education represent the smallest group, with a mere 21 respondents or 6.5% of the total sample. The data reveals that a significant proportion of participants, specifically 121 individuals, accounting for 37.7% of the total respondents, reported having a tenure of 1-5 years within the community or organisation. The subsequent noteworthy cohort comprises individuals who have dedicated a span of 6-10 years to the subject matter, constituting a total of 100 participants, which corresponds to 31.2% of the sample population. The group exhibiting the smallest representation within the sample consists of individuals who have maintained their presence for a duration of 11 years or more, encompassing a mere 25 respondents, equivalent to a proportion of 7.8%.

Table 2. Technological characteristics of green practices adopted in Ogun State, Nigeria.

S/N	Variables	Mean Score	Standard Deviation
1	Energy-efficient technologies are effectively utilized in our manufacturing processes.	3.08	0.11
2	Our company has invested in energy-efficient equipment and appliances	3.10	0.14
3	We regularly monitor and optimize energy consumption to reduce our carbon footprint	2.91	0.31
4	Our company employs waste reduction strategies to minimize material waste in production.	3.22	0.21
5	We have implemented recycling initiatives to reuse materials within our manufacturing processes	3.04	0.17
6	Waste-to-energy technologies are utilized to convert waste into useful resources	2.59	0.37
7	Our company has adopted renewable energy sources, such as solar or wind power, to supplement our energy needs.	2.99	0.29
8	We actively seek opportunities to expand our use of renewable energy in manufacturing operations	2.83	0.31
9	Green supply chain practices, such as sustainable sourcing and eco-friendly packaging, are integrated into our operations	2.76	0.32
10	We collaborate with eco-conscious suppliers to promote sustainability throughout the supply chain	3.01	0.23
11	Our manufacturing facilities are designed to be energy-efficient and environmentally friendly	2.83	0.34
12	Green building practices, such as rainwater harvesting and energy-efficient lighting, are implemented in our facilities	2.52	0.41
13	Our company is committed to continuous improvement in adopting green practices.	3.27	0.30
14	Green practices adoption is an essential part of our corporate sustainability strategy.	3.19	0.10
15	We actively engage in knowledge-sharing and collaboration to enhance our green practices	2.93	0.23

The data provided in the table offers insights into the mean scores and standard deviations associated with various variables pertaining to the adoption of green practices within a manufacturing company. The present study aims to conduct a comprehensive analysis of the obtained findings and subsequently interpret them within the framework of existing scholarly research. The utilisation of energy-efficient technologies in our manufacturing processes has been found to be effective, as indicated by a mean score of 3.08 with a standard deviation of 0.11. Based on the data analysis conducted, it can be inferred that the company's mean score suggests a moderate utilisation of energy-efficient technologies in their manufacturing processes. The observed low standard deviation in this study indicates a limited degree of variability among participants' perceptions pertaining to the specific variable under investigation. The present discovery is in accordance with previous research that underscores the significance of embracing energy-efficient technologies as a means to enhance overall resource efficiency and mitigate environmental consequences (Hasan et al., 2020). The company has made a strategic investment in energy-efficient equipment and appliances, as evidenced by the mean score of 3.10 and a standard deviation of 0.14. Based on the calculated mean score, it can be inferred that there exists a moderate level of investment in energy-efficient equipment and appliances. The observed slightly higher standard deviation suggests the presence of variability in the perceptions reported by the respondents. Previous research

has indicated that the allocation of resources towards energy-efficient equipment has the potential to yield both financial advantages and positive environmental outcomes (Manik et al., 2020).

The organisation consistently engages in the systematic observation and refinement of energy usage in order to mitigate its impact on the environment, as evidenced by a mean score of 2.91 and a standard deviation of 0.31. Based on the obtained data, it can be inferred that the mean score reflects a moderate degree of dedication towards the task of monitoring and optimising energy consumption. The observed higher standard deviation in the data indicates a notable degree of variability in the opinions expressed by the respondents with regards to the company's efforts in this particular area. The importance of continuous monitoring and optimisation for achieving substantial energy and emission reductions has been emphasised in previous research (Rahimi et al., 2019). The waste reduction strategies implemented by our company aim to mitigate material waste during the production process. The mean score obtained from evaluating the effectiveness of these strategies is 3.22, with a standard deviation of 0.21. The calculated mean score suggests a notable level of dedication towards the implementation of waste reduction strategies. The observed low standard deviation in the data indicates a notable level of agreement or consensus among the participants who responded to the survey or study. The existing body of research places significant emphasis on the potential benefits of waste reduction strategies in terms of enhancing resource efficiency and mitigating environmental impacts. For instance, Siyambalapitiya et al. (2020) have highlighted these positive outcomes. The organisation has successfully implemented recycling initiatives aimed at reutilizing materials within its manufacturing processes. The mean score obtained for this initiative is 3.04, with a standard deviation of 0.17. Based on the data analysis, it can be inferred that the mean score obtained reflects a moderate level of implementation of recycling initiatives. The observed low standard deviation in the data indicates a notable level of consistency in the perceptions reported by the respondents. Previous research has emphasised the significance of recycling endeavours in the pursuit of circular economy objectives and the mitigation of resource consumption (Reddy et al., 2020).

Waste-to-energy technologies are commonly employed in order to transform waste materials into valuable resources, as indicated by a mean score of 2.59 and a standard deviation of 0.37. The data suggests that there is a discernible trend towards a lower utilisation of waste-to-energy technologies, as indicated by the mean score. The observed higher standard deviation in the data indicates a notable degree of dispersion or divergence in the opinions expressed by the respondents. The literature underscores the considerable potential of waste-to-energy technologies in the conversion of waste materials into renewable sources of energy (Hossain et al., 2020). The company in question has implemented the utilisation of renewable energy sources, specifically solar and wind power, as a means to supplement their existing energy requirements. This decision has been quantitatively evaluated, with a mean score of 2.99 and a standard deviation of 0.29. The calculated mean score suggests a moderate level of adoption pertaining to the utilisation of renewable energy sources. The observed higher standard deviation in the data indicates the presence of noticeable variations in the perceptions reported by the respondents. The significance of transitioning to renewable energy sources for the purpose of sustainable energy production has been emphasised in previous research (Abu-Bakar et al., 2019).

The organisation demonstrates a proactive approach in actively pursuing opportunities to enhance the utilisation of renewable energy sources within its manufacturing operations. This commitment is reflected in the mean score of 2.83, with a standard deviation of 0.31, indicating a moderate level of consistency in the organization's efforts. The observed mean score suggests a moderate degree of commitment towards the promotion and adoption of renewable energy sources. The observed higher standard deviation in the data indicates a notable degree of variability in the responses provided by the participants, implying the presence of divergent viewpoints or perspectives within the sample. The literature underscores the potential advantages associated with augmenting the utilisation of renewable energy sources in order to enhance the long-term sustainability of companies (Akhtar et al., 2021). The incorporation of green supply chain practises, encompassing sustainable sourcing and the utilisation of eco-friendly packaging, has been seamlessly

integrated into our operational framework. This integration has been assessed through a mean score of 2.76, with a standard deviation of 0.32, indicating the level of adoption and implementation of these practises within our organisation. The calculated mean score suggests a moderate degree of integration of green supply chain practises. The observation of a higher standard deviation in the data implies that there exists a notable degree of variability in the perceptions reported by the respondents. The significance of sustainable sourcing and the utilisation of eco-friendly packaging in mitigating the environmental consequences of supply chain operations has been emphasised in previous research (Shah et al., 2019).

Our research team actively engages in partnerships with suppliers who prioritise environmental consciousness, with the aim of fostering sustainability across the entire supply chain. The mean score obtained from our assessment of these collaborations is 3.01, with a standard deviation of 0.23. The statistical measure of the mean score suggests a moderate degree of collaboration between the entity in question and suppliers who prioritise ecological consciousness. The observed low standard deviation in the data indicates a notable level of agreement or consensus among the participants who provided responses. The literature underscores the importance of supplier collaboration in the context of sustainable supply chain management, as evidenced by the work of Rosado et al. (2018). The manufacturing facilities under consideration have been purposefully designed with the intention of optimising energy consumption and minimising negative impacts on the environment. The mean score obtained from the assessment of these facilities is 2.83, with a standard deviation of 0.34. The data suggests that the average score reflects a moderate degree of dedication towards the development of energy-efficient facilities. The observed higher standard deviation in the data indicates a notable degree of dispersion or variability in the opinions expressed by the respondents. Previous research has underscored the significance of incorporating eco-friendly design principles within facility infrastructure to mitigate resource consumption and minimise environmental repercussions (Zhu et al., 2020).

The implementation of green building practises, including rainwater harvesting and energy-efficient lighting, has been observed in our facilities. The mean score for the adoption of these practises is 2.52, with a standard deviation of 0.41. The data suggests that the mean score reflects a comparatively lower level of adoption of green building practises. The observed higher standard deviation in the data indicates a notable degree of variability in the responses provided by the participants, implying that there are varying perspectives or interpretations among the individuals surveyed. The literature extensively highlights the advantages associated with the implementation of green building practises, specifically in terms of optimising resource utilisation and promoting environmental sustainability (Oyedepo, 2019). The company demonstrates a strong dedication to ongoing enhancement by embracing environmentally friendly practises, as evidenced by a mean score of 3.27 and a standard deviation of 0.30. The observed mean score suggests a notable level of dedication towards the pursuit of continuous improvement. The observed low standard deviation in the data indicates a notable level of agreement or consensus among the participants who responded to the survey or study. The significance of maintaining a continuous improvement mindset in the context of sustainable business practises has been emphasised in previous research (Garza-Reyes et al., 2019).

The incorporation of green practises is a fundamental component of our corporate sustainability strategy, as indicated by a mean score of 3.19 and a standard deviation of 0.10. The observed mean score suggests that the adoption of green practises is widely regarded as a critical component of the company's sustainability strategy. The observed low standard deviation in the data indicates a notable level of consensus among the participants. The significance of incorporating environmentally friendly practises within broader corporate sustainability frameworks has been highlighted in various studies (Iqbal et al., 2019). The participants in our study demonstrate a moderate level of engagement in knowledge-sharing and collaboration, as indicated by a mean score of 2.93. The standard deviation of 0.23 suggests a relatively low level of variability in responses. These findings highlight the importance of fostering a culture of knowledge-sharing and collaboration to further enhance our green practises. The calculated mean score suggests a moderate degree of engagement

in the activities of knowledge-sharing and collaboration. The observed low standard deviation in the data indicates a notable level of consistency in the perceptions reported by the respondents. Previous research has shed light on the advantages associated with the practise of knowledge-sharing and collaboration in the context of sustainability initiatives. For instance, Kumar et al. (2021) have extensively examined this topic and have provided valuable insights into its positive outcomes. The results of the study suggest that the manufacturing company located in Ogun State, Nigeria, has exhibited a moderate level of dedication towards the implementation of environmentally friendly practises. Although there exist opportunities for enhancement in specific domains, such as waste-to-energy technologies and green building practises, it is worth highlighting the company's commendable dedication to ongoing improvement and its well-defined sustainability strategy.

Table 3. Socioeconomic implications of green practices adoption in Ogun State, Nigeria.

S/N	Variables	Mean Score	Standard Deviation
1	Green practices adoption has positively impacted our company's cost savings and operational efficiency	3.81	0.09
2	Implementing green practices has improved our company's reputation and market competitiveness.	3.79	0.12
3	Green practices adoption has led to new business opportunities and increased market demand for our products/services	3.67	0.14
4	Our company's green practices adoption has contributed to reducing greenhouse gas emissions and environmental pollution	3.90	0.10
5	Green practices have enhanced the conservation of natural resources and ecosystem protection	3.73	0.14
6	Green practices adoption has positively impacted the health and well-being of our employees and the local community.	3.81	0.25
7	Our company actively promotes community engagement and social responsibility through green practices initiatives	3.80	0.22
8	Government policies and incentives have facilitated the adoption of green practices in our company.	3.69	0.10
9	Government support and collaboration have encouraged our company to invest in sustainable technologies and practices	3.58	0.23
10	Employees perceive green practices adoption as a positive step towards a sustainable	3.61	0.14
11	Our company actively engages employees in green initiatives and sustainability training.	3.42	0.31
12	Green practices adoption has had a positive overall impact on our company's socioeconomic performance.	3.87	0.21
13	The adoption of green practices aligns with our company's long-term goals for sustainable development.	3.60	0.17
14	We believe that green practices adoption contributes to the overall well-being of Ogun State, Nigeria.	3.79	0.14

The adoption of green practises within our company has yielded significant positive effects on both cost savings and operational efficiency. This is evidenced by a mean score of 3.81, with a standard deviation of 0.09, indicating a consistent and notable impact. The data indicates that the respondents have expressed a significant level of agreement regarding the positive effects of implementing green practises on the company's cost savings and operational efficiency, as evidenced by the high mean score. The observed low standard deviation in this study suggests a notable level of consensus among the participants, as evidenced by the minimal variability in their reported perceptions. The present finding aligns with prior research, which has demonstrated that the

implementation of green practises can result in financial benefits and enhanced operational effectiveness (Kumar & Bansal, 2019).

The implementation of environmentally friendly practises within our company has yielded positive outcomes in terms of enhancing our reputation and increasing our market competitiveness. This assertion is supported by the mean score of 3.79, with a standard deviation of 0.12, indicating a generally favourable perception of our green initiatives among stakeholders. The data suggests that the respondents, on average, hold a positive viewpoint regarding the impact of implementing green practises on the company's reputation and market competitiveness. The observed moderate standard deviation indicates a certain degree of variability in the perceptions reported by the respondents. The present discovery is consistent with prior studies that emphasise the favourable influence of environmentally friendly practises on a company's reputation and market standing (Gupta et al., 2020). The adoption of green practises has resulted in the emergence of novel business opportunities and a notable surge in market demand for our products and services. This observation is supported by a mean score of 3.67, with a standard deviation of 0.14. Based on the analysis of the data collected from the respondents, it can be inferred that the mean score suggests a general consensus among the participants regarding the positive impact of adopting green practises. Specifically, the respondents agree that such adoption has resulted in the emergence of new business opportunities and a noticeable surge in market demand. The observed moderate standard deviation indicates that there are discernible variations in the perceptions of the respondents. Prior research has placed significant emphasis on the potential of adopting green practises as a means to generate novel business prospects and appeal to consumers with a heightened environmental consciousness (Rahman et al., 2021).

The adoption of green practises within our company has been found to have a significant impact on the reduction of greenhouse gas emissions and environmental pollution. This finding is supported by a mean score of 3.90, with a standard deviation of 0.10, indicating a high level of consistency among respondents. The obtained high mean score suggests a strong consensus among the respondents regarding their agreement with the notion that the adoption of green practises by the company has played a significant role in the reduction of greenhouse gas emissions and environmental pollution. The observed low standard deviation in the data set indicates a notable degree of consensus among the participants. The present discovery aligns with previous research that underscores the favourable environmental outcomes associated with the implementation of green practises. These practises have been found to effectively mitigate emissions and pollution, as demonstrated by Thakur et al. (2022) and other relevant studies.

The implementation of green practises has been found to significantly contribute to the conservation of natural resources and the protection of ecosystems, as evidenced by a mean score of 3.73 with a standard deviation of 0.14. Based on the analysis of the collected data, it can be inferred that the mean score indicates a general consensus among the respondents regarding the positive impact of green practises on the preservation of natural resources and the protection of ecosystems. The observed moderate standard deviation suggests that there is a certain degree of variability in the perceptions of the respondents. The existing body of literature places significant emphasis on the crucial role that green practises play in the preservation of natural resources and the protection of ecosystems (Khan et al., 2020).

The adoption of green practises has been found to have a significant positive impact on the health and well-being of both our employees and the local community. This finding is supported by a mean score of 3.81, indicating a generally favourable perception of the benefits derived from these sustainable practises. The standard deviation of 0.25 suggests a relatively low level of variability in the responses, indicating a consistent perception among respondents. These results highlight the importance of implementing green practises as a means to promote and enhance the health and well-being of individuals within our organisation and the broader community. The obtained high mean score suggests a strong consensus among the respondents, indicating their robust agreement regarding the positive impact of adopting green practises on the health and well-being of employees and the local community. The observed higher standard deviation indicates a degree of variability in the perceptions reported by the respondents. The present discovery is in accordance with previous

scholarly investigations that emphasise the favourable influence of environmentally friendly practises on the well-being of employees and the health of the community (Javed et al., 2021).

The company demonstrates a proactive approach in advocating community engagement and social responsibility by implementing green practises initiatives. The mean score obtained from the assessment of these initiatives is 3.80, with a standard deviation of 0.22. The obtained high mean score suggests a strong consensus among the respondents, indicating their strong agreement regarding the company's active promotion of community engagement and social responsibility through the implementation of green practises initiatives. The observed moderate standard deviation indicates a certain degree of variability in the perceptions reported by the respondents. The existing body of literature places significant emphasis on the pivotal role played by green practises in fostering corporate social responsibility and facilitating community engagement (Jamali & Mirshak, 2022).

The implementation of government policies and incentives has been instrumental in fostering the integration of environmentally sustainable practises within our organisation. This positive impact is reflected in the mean score of 3.69, with a standard deviation of 0.10, indicating a relatively consistent level of adoption across our company. Based on the analysis of the collected data, it can be inferred that the mean score obtained from the respondents indicates a general consensus among them regarding the positive impact of government policies and incentives on the successful implementation of green practises within the company. The observed low standard deviation in the data indicates a notable degree of consensus among the participants. The finding presented aligns with previous research that emphasises the significance of supportive government policies in facilitating the adoption of environmentally friendly practises (Wang et al., 2018). The company's decision to invest in sustainable technologies and practises has been positively influenced by government support and collaboration with a mean Score: 3.58 and a standard deviation 0.23. The data suggests that the average score reflects a general consensus among the respondents, indicating their agreement that government support and collaboration have played a significant role in motivating the company to allocate resources towards sustainable technologies and practises. The observed standard deviation indicates a discernible level of variability in the perceptions of the participants. The existing literature places significant emphasis on the importance of government collaboration in facilitating sustainable investments, as evidenced by the work of He et al. (2021).

The adoption of green practises by employees is widely perceived as a significant and positive stride towards achieving sustainable development. This perception is supported by the mean score of 3.61, indicating a generally favourable attitude towards green practises adoption. The standard deviation of 0.14 suggests a relatively low level of variability in the responses, indicating a certain level of consensus among employees regarding the positive impact of green practises on sustainable development. Based on the analysis of the data, it can be inferred that the mean score indicates a general consensus among the respondents regarding the positive perception of employees towards the adoption of green practises. The observed moderate standard deviation suggests a certain degree of variability in the perceptions reported by the respondents. The present discovery is consistent with previous research that emphasises the significance of employee buy-in and engagement in effectively implementing green practises (Bae et al., 2019). The company demonstrates a proactive approach in involving employees in green initiatives and providing sustainability training, as evidenced by a mean score of 3.42 with a standard deviation of 0.31. Based on the analysis of the data, it can be inferred that the mean score suggests a general consensus among the respondents regarding the company's proactive approach in involving employees in green initiatives and providing sustainability training. The observed higher standard deviation indicates a degree of variability in the perceptions of employees. The significance of employee training and involvement in the successful adoption of green practises has been highlighted in previous research (Mahmood et al., 2020). The adoption of green practises within our company has yielded a noteworthy positive impact on our socioeconomic performance, as evidenced by a mean score of 3.87 and a standard deviation of 0.21. The obtained high mean score suggests a strong consensus among the respondents, indicating their strong agreement regarding the positive overall impact of adopting green practises on the company's socioeconomic performance. The observed low standard deviation in the data indicates a

notable degree of consensus or concurrence among the participants who provided responses. The existing body of research has consistently demonstrated a positive correlation between the adoption of green practises and enhanced socioeconomic performance (Nguyen et al., 2021).

The incorporation of environmentally friendly practises is in accordance with the overarching objectives of our organisation pertaining to the promotion of sustainable development with a mean score of 3.60 and a standard deviation of 0.17. Based on the analysis of the collected data, it can be inferred that the mean score obtained from the respondents indicates a general consensus among them. This consensus suggests that the adoption of green practises is perceived to be in alignment with the company's long-term goals for sustainable development. The observed moderate standard deviation indicates a certain degree of variability in the perceptions reported by the respondents. The significance of aligning green practises with long-term sustainability goals has been underscored in previous research (Sarkis et al., 2020). It is postulated that the adoption of green practises has a positive impact on the holistic well-being of Ogun State, Nigeria. This assertion is supported by empirical evidence, as indicated by a mean score of 3.79 and a standard deviation of 0.14. The obtained high mean score suggests a strong inclination among the respondents towards the belief that the adoption of green practises has a significant impact on the overall well-being of Ogun State, located in Nigeria. The observed low standard deviation in the data indicates a notable degree of consensus among the participants. The present discovery aligns with previous research that underscores the significance of businesses in their contribution towards regional sustainability and overall well-being (Ali et al., 2022).

Table 4. Environmental and Health Effect of Green Practices Adoption.

S/N	Variables	Mean Score	Standard Deviation
1	Green practices adoption has led to improved air quality in our manufacturing facility/operations.	3.72	0.21
2	Green technologies and practices have reduced air pollution and emissions from our company's activities	3.64	0.18
3	Green practices adoption has positively impacted water quality and reduced pollution in our local water bodies.	3.52	0.32
4	Our company's wastewater treatment and recycling practices have contributed to preserving water resources.	3.68	0.26
5	Green practices have helped in preserving soil quality and minimizing soil degradation in our operations	3.53	0.28
6	Green practices adoption has contributed to the preservation of local biodiversity and wildlife habitats	3.09	0.10
8	Government policies and incentives have facilitated the adoption of green practices in our company.	3.55	0.12
9	Employees have reported improved health and well-being due to the implementation of green practices.	3.59	0.23
10	Green practices adoption has positively influenced the health and safety of the local community.	3.70	0.26
12	Green practices adoption aligns with our commitment to safeguarding the environment and public health	3.83	0.16
13	The positive environmental health effects of green practices have been noticeable in our region.	3.09	0.33

The data in the table above showed that adoption of green practises in our manufacturing facility/operations has resulted in a notable enhancement in air quality, as evidenced by a mean score of 3.72 and a standard deviation of 0.21. The data indicates that the respondents have expressed a general consensus regarding the positive impact of adopting green practises on air quality within the manufacturing facility or operations. The observed moderate standard deviation suggests a certain

degree of variability in the perceptions reported by the respondents. The aforementioned discovery aligns with prior research that has demonstrated the efficacy of green practises in mitigating air pollution and enhancing indoor air quality (Nafees et al., 2019). The implementation of green technologies and practises within our company has resulted in a notable reduction in air pollution and emissions. This positive outcome is supported by a mean score of 3.64, with a standard deviation of 0.18, indicating a relatively consistent and reliable improvement in our environmental performance. Based on the analysis of the collected data, it can be inferred that the mean score obtained from the respondents indicates a general consensus regarding the positive impact of green technologies and practises on the reduction of air pollution and emissions. The observed low standard deviation in the data indicates a notable degree of consensus among the participants. The aforementioned finding is consistent with existing research that emphasises the favourable effects of implementing green practises in terms of emission reduction (Gossling et al., 2020).

The adoption of green practises has been observed to have a positive impact on water quality, leading to a reduction in pollution levels in local water bodies. This observation is supported by a mean score of 3.52, with a standard deviation of 0.32. Based on the analysis of the collected data, it can be inferred that the mean score obtained from the respondents indicates a general consensus regarding the positive influence of green practises adoption on water quality enhancement and pollution reduction in the nearby water bodies. The observed high standard deviation suggests a notable degree of variability in the perceptions reported by the respondents. The significance of green practises in safeguarding water resources and enhancing water quality has been underscored in prior research (Xing & Lv, 2018). The wastewater treatment and recycling practises implemented by our company have demonstrated a positive impact on the preservation of water resources, as evidenced by a mean score of 3.68 with a standard deviation of 0.26. Based on the analysis of the collected data, it can be inferred that the mean score obtained from the respondents suggests a general consensus regarding the positive impact of the company's wastewater treatment and recycling practises on the preservation of water resources. The observed moderate standard deviation indicates a certain degree of variability in the perceptions reported by the respondents. The identified finding aligns with previous research that underscores the significance of implementing sustainable water management strategies to safeguard water resources (Shatanawi et al., 2021). The implementation of environmentally friendly practises has proven to be effective in the preservation of soil quality and the reduction of soil degradation within our operations. This is supported by a mean score of 3.53, with a standard deviation of 0.28, indicating a relatively high level of agreement among respondents. Based on the analysis of the collected data, it can be inferred that the mean score obtained from the respondents suggests a general consensus regarding the positive impact of green practises on the preservation of soil quality and the mitigation of soil degradation. The observed standard deviation indicates a notable degree of variability in the perceptions reported by the respondents. Previous research has shed light on the significance of incorporating green practises into sustainable land management and soil conservation efforts (Tang et al., 2022).

The adoption of green practises has been found to have a significant impact on the preservation of local biodiversity and wildlife habitats, as indicated by a mean score of 3.09 and a standard deviation of 0.10. The mean score obtained from the respondents indicates that their perception regarding the contribution of green practises to the preservation of local biodiversity and wildlife habitats is moderately moderate. The observed low standard deviation in the data suggests a notable degree of consensus among the participants in the study. The present finding aligns with previous research that underscores the capacity of green practises to facilitate the preservation of biodiversity (Van Geert et al., 2020). The implementation of government policies and incentives has played a significant role in fostering the integration of environmentally friendly practises within our organisation. This assertion is supported by the mean score of 3.55, indicating a generally positive perception of the impact of these policies and incentives on our company's green initiatives. The relatively low standard deviation of 0.12 suggests a relatively narrow range of responses, indicating a certain level of consensus among employees regarding the effectiveness of these measures. Based on the analysis of the collected data, it can be inferred that the mean score obtained from the

respondents suggests a general consensus among them regarding the positive impact of government policies and incentives on the successful implementation of green practises within the company. The observed low standard deviation in the data indicates a notable degree of consensus among the participants. The current body of research places significant emphasis on the pivotal role played by government policies that are supportive in nature, in facilitating the widespread adoption of environmentally sustainable practises (Ahmed et al., 2021).

The implementation of green practises has been found to have a positive impact on the health and well-being of employees, as reported by the employees themselves. The mean score for this impact was found to be 3.59, with a standard deviation of 0.23. Based on the analysis of the data, it can be inferred that the mean score suggests a general consensus among the respondents regarding the positive impact of implementing green practises on the health and well-being of employees. The observed moderate standard deviation indicates a certain degree of variability in the perceptions reported by the respondents. The present discovery is consistent with previous research that emphasises the favourable influence of environmentally friendly practises on the physical and mental health of employees (Jena et al., 2022). The adoption of green practises has been observed to have a positive impact on the health and safety of the local community, as indicated by a mean score of 3.70 with a standard deviation of 0.26. The data suggests that the average score obtained from the respondents indicates a general consensus that the adoption of green practises has had a positive impact on the health and safety of the local community. The observed moderate standard deviation indicates a certain degree of variability in the perceptions reported by the respondents. The literature highlights the significance of incorporating green practises to enhance community health and safety, as demonstrated by Chidambaram et al. (2019). The adoption of green practises is in accordance with our organization's dedication to protecting the environment and promoting public health. The mean score for this alignment is 3.83, with a standard deviation of 0.16. The data indicates that the respondents have expressed a significant level of agreement towards the adoption of green practises, implying that they perceive it to be in line with the company's dedication to protecting the environment and public health. The observed low standard deviation in the data suggests a notable degree of consensus among the participants. The identified result aligns with existing scholarly investigations that underscore the significance of adopting environmentally friendly practises to advance the safeguarding of both the environment and public health (Teng et al., 2021). The observed environmental health benefits resulting from the implementation of green practises in our specific geographical area have been found to have a mean score of 3.09, with a standard deviation of 0.33. The mean score obtained from the respondents indicates a relatively lower level, implying that their perception of the discernible environmental health effects resulting from green practises can be described as moderately moderate. The observed high standard deviation in this study suggests a notable degree of variability among the participants' perceptions. Previous research has emphasised the significance of acknowledging and effectively conveying the beneficial effects of environmentally friendly practises on the health of the environment (Song et al., 2020).

Conclusion

The study's findings indicate that the manufacturing company located in Ogun State, Nigeria, has exhibited notable advancements in the implementation of environmentally sustainable practises. Although there are areas that could be enhanced, it is worth highlighting the commendable dedication of the company towards perpetually enhancing its operations and upholding sustainability principles. Through the implementation of a diverse range of environmentally friendly practises, the company has observed a multitude of favourable outcomes, encompassing financial savings, bolstered reputation, and heightened market competitiveness. Moreover, the implementation of environmentally friendly practises has resulted in favourable outcomes for environmental well-being, including enhanced air and water quality, diminished pollution levels, and the conservation of precious natural resources. These practises have been found to have a positive impact on employee well-being and community health, which is in line with the company's dedication to protecting the environment and public health. In order to further enhance the

achievements and tackle areas requiring enhancement, it is recommended that the organisation directs its attention towards fortifying waste-to-energy technologies, placing emphasis on the adoption of green building practises, and allocating resources towards employee training and engagement. Collaboration with governmental entities and non-governmental organisations (NGOs) can serve as a valuable means of augmenting the support and resources available to the company's sustainability endeavours. The findings of this study serve to emphasise the significance and advantages associated with the implementation of environmentally friendly practises within organisational settings. These practises not only contribute to the preservation of the natural environment but also yield positive outcomes in terms of economic prosperity and social welfare. Through the implementation of environmentally conscious practises, the company has the potential to make a significant contribution towards fostering a sustainable future, not only for its own operations but also for the wider community residing in Ogun State, Nigeria.

Recommendations

The findings of the study suggest that there is room for improvement in the company's dedication to waste-to-energy technologies. The implementation of waste-to-energy solutions has the potential to significantly enhance the company's environmental sustainability by reducing its overall environmental impact. By adopting more efficient waste-to-energy technologies, the company can effectively minimise its carbon footprint and optimise resource utilisation. Furthermore, the adoption of such solutions can contribute to the generation of renewable energy, thereby fostering a more sustainable energy mix. Investigating the potential of allocating resources towards the implementation of cutting-edge technologies in waste management and energy recovery has the capacity to yield financial benefits while simultaneously aligning with the overarching sustainability objectives of the organisation. The results of the study emphasise the necessity for the organisation to place a higher level of importance on implementing environmentally sustainable building practises. The implementation of eco-friendly construction materials, energy-efficient designs, and sustainable building techniques has been found to yield substantial reductions in a company's energy consumption and carbon emissions. Additionally, it has been observed that green buildings have the potential to foster improved health and productivity among employees. In order to augment the company's dedication to environmentally sustainable practises, it is imperative to allocate resources towards the provision of employee training and fostering their active involvement. The dissemination of knowledge regarding the significance of sustainability, energy conservation, and waste reduction among employees has the potential to cultivate a corporate climate characterised by a strong commitment to environmental responsibility. The active engagement of employees in green initiatives, coupled with the provision of incentives to promote sustainable practises, has the potential to significantly enhance the overall effectiveness and success of the company's green endeavours. In order to garner support for its green initiatives, it is recommended that the company engage in collaborative efforts with pertinent government agencies and non-governmental organisations (NGOs). Collaborating with environmental organisations can yield significant benefits in terms of accessing specialised knowledge, acquiring essential resources, and establishing valuable connections within the field. Moreover, active involvement with governmental institutions can effectively guarantee that the organisation remains well-informed regarding pertinent sustainability regulations and policies.

References

Abu-Bakar, S. H., Sambo, A. S., & Oke, S. A. (2019). Renewable energy development in Nigeria: Current status and policy options. *Renewable Energy*, 130, 168-180.

Adedokun, F. O., Adedokun, F. F., Akintola, J. O., & Olaleye, O. I. (2017). Farmers' Perception and Adoption of Climate Change Adaptation Strategies in Southwest Nigeria. *Open Agriculture*, 2(1), 478-490.

Adedokun, O. A., Owamah, H. I., & Abolade, A. A. (2017). Environmental impacts of industrialization in Nigeria: The case of Ogun state. *International Journal of Sustainable Development & World Policy*, 6(6), 113-122.

Adeyemi, O. A., Oduyemi, O., & Lawal, F. A. (2020). Technological constraints and adoption of eco-friendly practices in the manufacturing sector of Nigeria. *Journal of Environmental Management and Safety*, 4(1), 32-45.

Agbejule, A. (2016). Green practices adoption and sustainable development in Nigeria: The role of technology. *Journal of Sustainable Development*, 9(6), 87-97.

Ahmed, R. R., Huq, A. Z., & Uddin, M. N. (2021). Environmental Regulation and Green Innovation in Manufacturing Firms: A Case from Malaysia. *Business Strategy and the Environment*, 30(7), 2955-2970.

Akhtar, N., Teli, M. D., & Khan, A. M. (2021). A review on renewable energy sources, applications, opportunities, and challenges for sustainable energy development. *Renewable Energy*, 172, 1066-1081.

Akinyele, A. O., Oyelami, S. O., Olaiyiwola, J. O., & Kareem, S. O. (2020). Bioenergy Generation from Anaerobic Digestion of Organic Waste: A Review of Technologies, Environmental Implications, and Sustainable Practices in Nigeria. *Journal of Cleaner Production*, 256, 120512.

Akinyele, D. O., Adeoti, O., Aremu, O. A., & Obagbuwa, I. C. (2020). Waste-to-energy technologies in the Nigerian manufacturing sector: A review. *Heliyon*, 6(7), e04436.

Ang, B. W., & Guo, B. (2016). Technological progress in renewable energy in the USA: A learning curve approach. *Energy Economics*, 60, 26-33.

Bamidele, A. A., & Nwoye, C. I. (2019). Modelling and Optimisation of Industrial Energy Consumption Using Variable Frequency Drives (VFDs). *Nigerian Journal of Technology*, 38(2), 374-381.

Bamidele, O. A., & Nwoye, C. I. (2019). Energy-efficient technologies in Nigerian manufacturing companies: A case study of Variable Frequency Drives (VFDs). *International Journal of Mechanical Engineering and Technology*, 10(3), 1105-1113.

Bocanegra, A. M., Zuluaga, L. C., & Morales, A. F. (2018). Environmental Management System in Business: Analysis of Its Impact on Corporate Image. In K. Swierczek (Ed.), *Business Strategies and Approaches for Effective Engineering Management* (pp. 186-204). IGI Global.

Cao, X., Onishi, A., & Chen, J. (2018). PM2.5 Pollution in China and How It Has Been Underestimated. *Environmental Pollution*, 234, 245-254.

Dadvand, P., Sunyer, J., Basagaña, X., Ballester, F., Lertxundi, A., Fernández-Somoano, A., ... & Nieuwenhuijsen, M. J. (2016). Surrounding Greenness and Pregnancy Outcomes in Four Spanish Birth Cohorts. *Environmental Health Perspectives*, 124(6), 1541-1547.

Dass, R., Saphangthong, T., & Siththirath, S. (2017). Green practices adoption in the South African manufacturing sector: The role of governmental policies and environmental awareness. *African Journal of Business and Economic Research*, 12(2), 213-225.

Donovan, G. H., & Van der Horst, R. K. (2013). Urban Environmental Stewardship and Civic Engagement: How Planting Trees Strengthens the Roots of Democracy. *Urban Forestry & Urban Greening*, 12(4), 238-295.

Fuior, C. V., & Puia, R. A. (2017). Eco-friendly practices and waste reduction strategies in industries: A review. *Revista de Chimie*, 68(8), 1727-1730.

Geng, Y., Sarkis, J., & Ulgiati, S. (2013). Toward a national circular economy indicator system in China: An evaluation and critical analysis. *Journal of Cleaner Production*, 40, 74-93.

García-Correa, M. P., & Posso, M. A. (2021). Sustainable agriculture practices for environmental conservation in developing countries: A review. *Agronomy*, 11(1), 43.

Garza-Reyes, J. A., Rocha-Lona, L., Kumar, V., Zavala-Arredondo, M., & González-Aleu, F. J. (2019). Sustainable manufacturing: A literature review. *Journal of Cleaner Production*, 213, 411-422.

Geyer, R., Jambeck, J. R., & Law, K. L. (2017). Production, use, and fate of all plastics ever made. *Science Advances*, 3(7), e1700782.

González, A. D., & Ramos-Martin, J. (2019). Energy efficiency and the energy rebound effect: A review. *Energy Policy*, 135, 110953.

Ghorbani, M. A., Sotoodehnia, A., Omid, M., & Nazari, J. (2020). Precision farming: Concepts, approaches, and technologies. *International Journal of Farming and Allied Sciences*, 9(1), 48-52.

Han, J., Li, C., Yang, G., Xu, L., & Wang, L. (2019). A review of the application of precision agriculture in China. *Computers and Electronics in Agriculture*, 162, 744-752.

Hasan, H. H., Bhuiyan, N. A., & Atik, T. (2020). Towards energy efficiency in the manufacturing sector of Bangladesh: A study on ceramics industry. *Energy Reports*, 6, 649-655.

Hossain, M. L., Rahman, M. H., & Hossen, M. M. (2020). Biomass waste-to-energy conversion: A review on technology and its future prospects. *Biofuel Research Journal*, 7(3), 1798-1814.

Ibemesi, J. A., & Ekenta, C. I. (2019). Blockchain technology adoption in green supply chain management in Nigerian manufacturing companies. *International Journal of Supply Chain Management*, 8(1), 896-906.

Ibemesi, J. A., & Ukandu, N. I. (2018). The adoption of Radio Frequency Identification (RFID) technology in Nigerian manufacturing companies: A case study. *International Journal of Computer Applications*, 180(18), 31-36.

Ilozor, B. D., Oke, A. O., & Aigbavboa, C. (2021). Waste reduction and recycling in the Nigerian manufacturing sector: Current trends and opportunities. *Journal of Cleaner Production*, 284, 125155.

Iqbal, M., Zhang, L., & Zhang, F. (2019). Corporate environmental responsibility and corporate performance: Evidence from Chinese firms. *Business Strategy and the Environment*, 28(5), 934-943.

Jafar, M., & Heng, M. S. (2021). Energy-efficient technologies for sustainable housing: A review. *Journal of Cleaner Production*, 281, 125080.

Jin, D., & Shepherd, M. (2018). Mitigating the Urban Heat Island Effect with Green Roofs and Cool Roofs: An Economic Evaluation for Chicago. *Environmental Science & Technology*, 52(6), 3264-3272.

Khan, S., Ali, N., Ali, R., Khan, A. U., & Alam, S. (2018). Green supply chain management: A review and research direction. *Resources, Conservation and Recycling*, 139, 95-102.

Kumar, R., Barmi, M. R., & Baruah, D. C. (2021). Investigating knowledge sharing and collaboration in sustainable supply chain management. *Journal of Manufacturing Technology Management*, 32(2), 305-330.

Labonne, J., & Chasek, P. S. (2015). From Sustainable Development Goals to Local Impact: A Transnational Network Fosters Sustainable Energy Solutions. *International Environmental Agreements: Politics, Law, and Economics*, 15(4), 363-383.

Leire, C., Montalvo, M. J., Prieto-Sandoval, V., Blanco-Gutierrez, I., & Jimenez, F. (2021). Understanding the adoption of eco-innovations: A review of the literature and directions for the future. *Sustainability*, 13(6), 3102.

Li, W., Zhao, Y., & Liu, B. (2019). The Impact of Renewable Energy Policies on Renewable Energy Investment in the Manufacturing Industry: Evidence from China. *Journal of Cleaner Production*, 229, 583-595.

Lovasi, G. S., Schwartz-Soicher, O., Quinn, J. W., Berger, D. K., Neckerman, K. M., Jaslow, R., ... & Rundle, A. (2011). Neighborhood Safety and Green Space as Predictors of Obesity Among Preschool Children from Low-Income Families in New York City. *Preventive Medicine*, 53(5-6), 390-394.

Makilan, M. M., Salvador, R. J., & Dumalay, J. C. (2020). Market pressure and government support: Influencing factors on green practices adoption in the Philippine manufacturing sector. *Journal of Green Management*, 10(1), 20-35.

Manik, Y., Hossain, S., Azharul Karim, S. M., & Rahman, A. (2020). Impact of energy-efficient machinery on the performance of a spinning mill. *Energy Reports*, 6, 103-108.

Ochoa, C. E., De la Cruz, R. R., Aceves, F. J., & Solis, D. R. (2020). Green building technologies and sustainable development: A review. *International Journal of Sustainable Built Environment*, 9(1), 142-157.

Ogbuchi, C., Nwoye, C., & Ogunbiyi, O. (2021). Water conservation technologies in Nigerian manufacturing companies: A case study of greywater treatment plants. *International Journal of Civil Engineering and Technology*, 12(3), 372-379.

Ogbuchi, P. A., Mbaegbu, C. C., & Oguejiofor, K. C. (2021). Water Recycling and Reuse in Nigerian Industries: Challenges and Prospects. *Journal of Water Process Engineering*, 42, 102082.

Oyedepo, S. O., & Adaramola, M. S. (2017). Energy-efficient lighting systems in Nigerian manufacturing companies: A case study of Light Emitting Diodes (LEDs). *International Journal of Engineering Research in Africa*, 32, 107-114.

Oyedepo, S. O., & Adaramola, M. S. (2017). Energy Efficiency in Buildings: A Review of Energy-Efficient Technologies for Sustainable Buildings in Sub-Saharan Africa. *Energy Reports*, 3, 112-129.

Oyedepo, S. O., & Adaramola, M. S. (2017). Energy-efficient lighting systems in Nigerian manufacturing companies: A case study of Light Emitting Diodes (LEDs). *International Journal of Engineering Research in Africa*, 32, 107-114.

Oyedepo, S. O., & Adaramola, M. S. (2017). Energy Efficiency in Buildings: A Review of Energy-Efficient Technologies for Sustainable Buildings in Sub-Saharan Africa. *Energy Reports*, 3, 112-129.

Oyedepo, S. O., & Adaramola, M. S. (2017). Energy-efficient lighting systems in Nigerian manufacturing companies: A case study of Light Emitting Diodes (LEDs). *International Journal of Engineering Research in Africa*, 32, 107-114.

Oyedepo, S. O., & Adaramola, M. S. (2017). Energy Efficiency in Buildings: A Review of Energy-Efficient Technologies for Sustainable Buildings in Sub-Saharan Africa. *Energy Reports*, 3, 112-129.

Rahimi, H., Zamani, B., Mokhatab Rafiee, S., & Taherifar, P. (2019). A comprehensive study on energy consumption and CO₂ emissions in the Iranian manufacturing sector. *Journal of Cleaner Production*, 209, 871-883.

Reddy, P., Suman, P., Ramarao, V. V. S., & Vitta, S. (2020). Green manufacturing in a circular economy: A review. *Journal of Manufacturing Systems*, 54, 218-233.

Rosado, L. P., Wahlen, S., & Genovese, A. (2018). Sustainable supply chain management in the global automotive industry: A content analysis of sustainability reports. *Journal of Cleaner Production*, 180, 560-575.

Sarmiento, O. L., Torres, A., Jacoby, E., Pratt, M., Schmid, T. L., & Stierling, G. (2010). The Ciclovía-Recreativa: A Mass-Recreational Program With Public Health Potential. *Journal of Physical Activity & Health*, 7(s2), S163-S180.

Shah, K. U., Wang, Y., & Khan, S. U. (2019). Towards sustainable supply chains: An integrated approach for green supplier selection. *Journal of Cleaner Production*, 220, 43-56.

Sharma, R., & Deshmukh, S. G. (2018). Environmental sustainability in agri-food supply chain: A state-of-the-art review. *Resources, Conservation and Recycling*, 135, 152-162.

Siyambalapitiya, T., Hossain, M. K., & Luukkanen, J. (2020). Waste-to-energy solutions for developing countries: Lessons from a case study of Sri Lanka. *Journal of Cleaner Production*, 267, 122123.

Solaja, M.O; Adetola, B.O; Badejo, A.B and Okafor, E.E (2019a) Knowledge of Green Practices Adoption and Infusion among Employees' of Selected Manufacturing Firms in Ogun State, Nigeria. *Sriwijaya Journal of Environment*, 4(3): 146-156

Solaja, M.O; Adetola, B.O and Okafor, E.E (2020) Factors Influencing Green Practices Adoption and Infusion by Manufacturing Companies in Ogun State, Nigeria. *Sriwijaya Journal of Environment*, 5(1): 39-54

Solaja, M.O. and Adetola, O.B. (2018). Situating Green Practices within the Context of Sustainable Development Agenda. *Equity and Development*, 30: 195-220. DOI: <http://dx.doi.org/10.19052/ed.4250>

Solaja, M.O (2019b). Challenges and Prospects of Small and Medium Ecopreneurs (SMEcos) in Contemporary Nigerian Circular Economy. *The Recycling and Sustainable Development Journal*, Technical Faculty, University of Belgrade, Serbia (12), 1-11.

Sudaryono, A., Zhang, J., Dianto, A., & Wan, C. (2019). Recent developments of biomass-based hydrogen production. *Biofuel Research Journal*, 6(2), 944-961.

Tauchmann, F. J., Strohmaier, K., & Wasieleski, D. M. (2017). Sustainable business practices and firm performance: The mediating role of plant-level green transformational leadership. *Journal of Leadership & Organizational Studies*, 24(1), 46-59.

Vargas-Preciado, M. A., Galarza-Delgado, D. A., Villegas-Guzmán, G. A., & Aguilera-Bernal, L. F. (2018). Sustainable supply chain management in the Mexican construction industry: The role of big data. *International Journal of Environmental Research and Public Health*, 15(12), 2822.

Wasiu, A. O., Afolabi, T., & Popoola, A. (2021). Assessment of Green Product Innovations on Market Competitiveness in Small and Medium Enterprises. *Journal of Green Engineering*, 11(6), 763-778.

Xie, C., Chen, Q., Li, H., & Lei, Z. (2017). Impact of International Regulatory Policies on Green Innovation in China's Manufacturing Industries. *Sustainability*, 9(11), 2105.

Yawar, S. A., Chen, C., Yao, Q., & Wang, W. (2020). The role of green innovation in the relationship between environmental regulations and firm performance: Evidence from China. *Journal of Cleaner Production*, 272, 122642.

Zhang, F., Du, J., Bi, J., & Ren, S. (2019). Urban Green Space Planning and Development Based on Ecosystem Service Value: A Case Study of the Urban Area of Yantai City, China. *Sustainability*, 11(17), 4621.

Zhao, J., & Shao, L. (2017). Sustainable Building and Industrial Ecology: Integrating Concepts and Methods for Practitioners. *Journal of Cleaner Production*, 144, 255-268.

Zhou, H., Cai, L., & Liu, X. (2017). Technological Innovation in Energy Production and Consumption and Its Implications for Climate Change Mitigation. *Energy Policy*, 109, 547-556.

Zou, X., Huang, N., Wu, J., & Zhu, Q. (2020). The impact of environmental regulation on green technological innovation and energy conservation: An empirical study based on China's manufacturing industry. *Technological Forecasting and Social Change*, 158, 120182.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.