



## Implementation of Green Supply Chain Management Practices in Zimbabwean Organizations

Cynthia Mupfiga<sup>1\*</sup>, Munyaradzi Chibaro<sup>2</sup> , Munyaradzi Mahwine<sup>3</sup>, Munyaradzi Muchemwa<sup>4</sup>  
<sup>1,2,3,4</sup> Midlands State University, Zimbabwe

Received : August 23, 2023

Revised : May 27, 2024

Accepted : May 30, 2024

Online : May 31, 2024

### Abstract

The study looked into the implementation of green supply chain management practices in Zimbabwean Organizations. Since 2000, Zimbabwe has witnessed a significant number of business closures, which has consequently impeded the adoption of green supply chain practices. The study was guided by the objectives that included investigating the need to implement green supply chain management, examining implementation success factors that promote green supply chain management, and identifying the challenges faced in promoting green supply chain management. Interpretivism research philosophy and descriptive research design were adopted in this study. A specific population was drawn from 150 employees of selected Zimbabwean logistic companies. Non-probability sampling methods were adopted in this study. The findings on climate concern as the need for green supply chain implementation show that 10% strongly disagree with that view, 35% were neutral, and the other 30% strongly agreed. Findings on green manufacturing technology practice as one of the success factors that promote green supply chain management showed that 15% strongly disagreed with the view, 30% were neutral, and the other 30% strongly agreed. The findings on regulatory challenges faced in promoting green supply chain management show that 10% strongly disagree with that view, 35% were neutral, while the other 30% strongly agreed. This study demonstrates that green supply chain management is crucial for environmental protection, mitigating pollution, and addressing climate-related challenges. It recommends that organizations and other stakeholders in Zimbabwe develop various strategies to enhance the implementation of green supply chain practices.

**Keywords:** *Green Supply Chain; Green Procurement; Environmental Preservation; Regulatory; Leadership; Consumer Awareness*

### INTRODUCTION

Organizations across this global community have been operating despite climate change triggered by their operations (Keller et al., 2022). In a bid to promote environmental sustainability, these organizations have been encouraged to implement green supply chain management practices (New York Times, 2020). Green supply chain management practices involve offering stakeholders goods and services that are environmentally friendly. According to Srivastava (2007), green supply chain management practices adopted by European organizations include green packaging, green procurement, green sourcing strategy, green logistics, use of energy-efficient emerging technologies, recycling and waste management (Li, 2011). Tesla is another motor vehicle manufacturing company in the United States of America that is excelling because of green supply chain management practices such as the use of emerging energy efficiency technologies (Mangla et al., 2014). Tesla is promoting green supply chain management through the manufacturing of their car, which uses electricity rather than other fossil fuels, thus making it environmentally friendly. Tesla, through green supply chain management practices, has managed to recoup profits of more than US\$40 billion in the last decade and has managed to improved customer retention by more than 30% in the same period (Tesla Investor Relations, 2022). Mars operating in the Netherlands has also managed to improve their implementation of green supply chain management practices through green logistics as the organization has been supplying medication as well as other products that are environmental friendly (MaRS Discovery District, 2021). Green supply chain management practices have managed to improve their operations, as evidenced by reduced customer complaints

### Copyright Holder:

© Mupfiga et al. (2024)

Corresponding author's email: mupfigac@staff.msu.ac.zw

### This Article is Licensed Under:



by more than 56% (CNN news review, 2020).

African countries, on the other hand, are implementing green supply chain practices in their businesses. Among the countries with organization sustaining through green supply chain practices are Zambia, Ghana, South Africa, Namibia, Rwanda, Tunisia and Tanzania (Kussaga et al., 2014). Zambia, which is among the fastest rising as well as growing economies in Africa, is implementing a green supply chain in its business as a strategy of offering customers with products and services that are environmental friendly (Fessehaie et al., 2015). Milkit is another dairy company in Zambia that is implementing green packaging and green promotion in their products that they supply to Southern African countries (Milkit Chairmen's Report, 2021). Mining companies in South Africa are also practicing green supply chain in their business through green procurement and waste management, for instance, Kimberly Diamonds. Kimberly Diamonds, through green supply chain practices, has managed to improve their return on investment (ROA) by more than 15% and revenue generation by more than R25 billion (Mail and Guardian, 2021). Additionally, organizations in Rwanda are investing in solar powered energy as part of their green supply chain implementation strategy (Mukeshimana et al., 2021).

Studies related to the implementation of green supply chain management practices are not as new as most academia believe in the existing body of knowledge. There is evidence that prior studies have been conducted on the implementation of green supply chain management practices. One of the studies was conducted by Zhu and Sarkis (2007) in Thailand. His study aimed at looking at factors considered for the adoption of green supply chain, limitations affecting and recommended strategies. A similar study was also conducted by Margallo et al. (2019) in the United States of America, focusing on waste management companies. The other research was also done by King and Lenox (2001) in the Netherlands. Studies by Zhu and Sarkis (2007), Margallo et al. (2019), and King and Lenox (2001) prove that a knowledge gap exists in Zimbabwe as there is a need to fill the knowledge gap that has been left out by prior studies. This paper attempted to fill the knowledge gap by investigating the implementation of green supply chain management practices in Zimbabwean organizations.

Zimbabwe has experienced drastic closures in most companies since 2000, and this has also affected the implementation of green supply chain practices. Despite efforts made by other companies like Delta in the beverage manufacturing sector, Mimosa in the mining sector, Probrands in the manufacturing sector, and National Foods' adoption of green supply chain in their operations, it seems as if they are still facing numerous challenges. Probrands green logistics seem to have been affected by fleet downtime as the company's operational expenditure has increased by more than US\$200 000 in the last half decade and reduced operational efficiency by 4% (Rebrands Chairmen's Report, 2018). Delta beverages is also experiencing green procurement challenges as well as green sourcing problems as most of their products pollute the environment and their operations as well (The Zimbabwe Independent, 2021). The Environmental Management Agency board (EMA) in Zimbabwe has fined many organizations for failing to comply with the implementation of green supply chain practices. This motivated the researcher of this paper to investigate the implementation of green supply chain management practices in Zimbabwean Organizations. Research objectives of the study are:

- a. To investigate the need to implement green supply chain management
- b. To examine the implementation success factors that promote green supply chain management
- c. To identify the challenges faced in promoting green supply chain management.

## LITERATURE REVIEW

### The Need to Implement Green Supply Chain Management

The World Climate change resolutions in 2021 have shown great significance in the need for adopting environmentally friendly supply chain management. In relation to these resolutions, the world has come together to set strategic goals that help enhance environmental sustainability. The world governing body (United Nations) has set aside a budget to finance the transition from fossil fuels to green energy. This budget seeks to assist in setting out green revolution projects. In addition, research conducted by Fortes (2009) pointed out that there is some progress in some parts of Asian countries such as China in developing and adopting the green revolution. due to heavy industrialization in China, pollution from fossil emissions has increased; hence, there is a need for a rapid response to change in the climatology. This is in response to governmental environmental regulations. In addition, the manufacturing and production industries are the main polluters in relation to the depletion of natural resources, waste generation, and ecosystem disruptions, among others. Therefore, green supply chain practices have been set out in the legislation to enhance cooperation and implementation.

In many countries, throwing litter has become an offense that may result in a jail term or a court judgment as a strategy to enhance green supply chain adaptability. Research conducted by Beamon (1999) outlined that the successful implantation of green supply chain management practices will result in the improved performance of the environment as it will be witnessed by a decrease in gas emissions, solid and liquid waste, and other toxic materials. The findings from his study recommended that successful implementation of green supply chain management practices leads to success at the organizational level. Another study conducted by Mutandwa (2023) reviewed that state-owned entities have been set as the pioneers and driving forces to implement green supply chain management practices. Customers' demands have also shifted with global awareness of climate change. Thus, managers should identify and implement environmental sustainability practices that extend throughout the supply chain. Green et al. (1998) highlighted that the successful implementation of green supply chain management practices has a positive correlation to organizational performance. For example, companies such as Tesla have managed to recoup high profits due to increased product and reduced environmental costs while ensuring environmentally friendly operations. Adopting green supply chain management practices is a major driver of profitability

### Success Factors that Promote Green Supply Chain Management

Successful implementation of green supply chain management practices has been driven by several factors. These factors have been recommended to all manufacturing and production economies around the world as the best methods and mechanisms to enhance the adaptability of green supply chain management.

#### Green Manufacturing Technology Practice

This factor has set out parameters in environmental management through the adoption of modern environmentally friendly technologies. Green manufacturing technological practices are regarded as the most vital factor that leads to successful implementation of green supply chain management. Research conducted by Murray (2000) in Thailand recommended the implementation of green manufacturing technologies in the electronics industry as it affects operating achievement based on green supply chain. It has outlined the advantages and importance of results generated by setting systematic manufacturing and technology to reduce waste production and enhance environmental management

### **Green Logistics Practice**

Green logistics practice is another driving factor for successful implementation of green supply chain management. Green logistics refers to reverse logistics that helps to recycle raw materials. Research done by [Winch \(2003\)](#) has regarded green logistics as the second key factor where reverse logistics will concentrate on properly receiving raw material back from customers due to hazardous and durable wastes control. Electronics industry products are related to metals, lead, iron, colorants, and chemicals, which are persistent and pose a threat to the environment. Therefore, for a successful implementation of green supply chain management, eco-design should be involved in every aspect of practices in each and every organization.

### **Green Sourcing Strategy**

The green sourcing strategy is another factor that leads to green supply chain management practice. Research conducted by [Linton \(2007\)](#) reviewed that all details in the manufacturing process will be regarded beneficial to procurement with a focus on raw material acquisition and packaging, which can be recycled or reused. It was found that both the green manufacturing practice and the green logistics practice were strongly correlated with financial performance, but green sourcing was not. In addition, the findings from the research also indicated that green supply logistics complexity and cost are the major challenges to successful implementation of green supply chain management. Therefore, there is a need for cost-effectiveness and feasibility to successfully implement green supply chain management. As a result, more cost-effective and easier-to-implement solutions are still needed for the future economic and environmental sustainability of the industry.

### **Challenges Faced in Promoting Green Supply Chain Management**

This paper studies the implementation of green supply chain management. There are a number of challenges that affect the successful implementation of green supply chain management. In relation to climate change, it has become a norm for each and every organization to adopt green supply chain management; however, there are some challenges that may hinder its progress, as explained below.

#### **Regulatory**

According to [Kamolkitiwong and Phruksaphanrat \(2011\)](#), regulatory compliance is one of the most critical challenges that affect the successful implementation of green supply chain management. There are still stiff regulations that inhibit green revolution strategies due to political interests and corruption among other countries in the African region. The regulatory body has laws that support and reward those who strive to implement green supply chain management. Research conducted in Kenya ([Ochieng, 2019](#)) outlined that solar electronics firms possess more experience in international business and face higher regulatory pressure to initiate green supply chain management than other businesses. Therefore, the government should promote green supply chain management projects to create business opportunities by improving people, increasing knowledge, technology, innovation, and creativity based on the concept of green supply chain management systems.

#### **Leadership**

Leadership is one of the main challenges that many organizations face when implementing green supply chain management. According to [Clay and Zimmerer \(2020\)](#), most management positions are held by old age; hence, adaptability to the green revolution becomes a long process to implement due to their resistance to change. Research conducted by [Shah et al. \(2021\)](#) outlined that

getting support from top management in implementation of green supply chain management is important because the attitude of top management toward environmental issues and visions directly affects the organization's strategic goals. Therefore, the top management should always be committed to the implementation of environmental policies, encourage employees to be aware of the green revolution, and provide resources toward the successful implementation of environmentally friendly projects.

### **Market or Consumer Awareness**

Market awareness is another challenge that affects green supply management practices. Customers are reluctant to try new products and services; hence, there is a need for organizations to set out a strategic plan to increase awareness and benefits of the green revolution (Rehman and Shrivastava, 2011). Market or consumer awareness, which can be increased only through proper education on being environmentally friendly by all concerned individuals. Therefore, innovation, especially green product innovation, should be adopted to meet market demand and gain a competitive advantage. In addition, economic benefit, competitors, cost reduction, stakeholder, reverse logistics, and supplier are the other levels, which are important factors in the implementation of green supply chain management (Tippayawong et al., 2015).

Therefore, the green supply chain management practices concept is regarded as a measurement of a firm's competence involving management on environmental performance, which is based on a combination of green thinking such as green procurement, green design, green manufacturing, green logistics, green consumption, and green recycling. Finally, as a result, government increased support firms can cope with challenges faced against the successful implementation of green supply chain management. Result of performance evaluation from green supply chain management operations can be used to improve both the economic and environmental performance of the organization.

### **RESEARCH METHOD**

Creswell and Creswell (2017) defined research methodology as the theoretical logic and research procedure by which facts are explored and developed. In relation to this study, the research, principles, theories, and values that underpin one's research approach are being considered. Thus, research methodology simply refers to the various methods used in collecting and analyzing data with the goal of describing how one can achieve the research aims and covering the research structured questions.

### **Research Philosophy**

Research philosophy refers to an ideology or concept that one has to consider or follow while conducting primary research. It is also regarded as a guideline in relation to the nature of the research. In this case, the research adopted an interpretivism research philosophy. Interpretivism research philosophy is regarded as a research philosophy that attempts to provide an interpretation of the study. It focuses mainly on both primary and secondary interpretations. This helps the research to gather more relevant information pertaining the implementation of green supply chain management.

### **Research Design**

The paper adopted a descriptive research design. According to Bell (2022), research design is regarded as a road map or guideline to research. It is also referred to as a framework for gathering and analyzing data that identifies the type of research being conducted. The research design thus serves as a guide for how the study will be conducted, so the findings can be generalized.

### Target Population and Sample Size

The target population is the total number of elements or participants to be included in the research. The target population must always be drawn from the relevant subject to obtain valid and reliable research results. A population is made up of all items in a subject of inquiry. In this study, the researcher targeted 150 participants from logistic organizations in Zimbabwe. The researcher further reduced the target population to manage the sample size using the [Krejcie and Morgan \(1970\)](#) sample size determination model.

**Table 1.** Population and Sample Size

Description	Target population	Sample size
Employees from selected Zimbabwean logistic companies	150	120
Total	150	120

### Study Area

The study was conducted in Midlands Province of Zimbabwe, drawing the respondents, particularly the employees from selected Zimbabwean logistic companies. The study area also covered towns in the province that included Kwekwe, Gweru, Shurugwi, and Zvishavane. The study area was idle for the study as it is the central area of Zimbabwe connecting many destinations and has been experiencing challenges related to green supply chain management.

### Research Instrument

According to [Creswell and Creswell \(2017\)](#), the questionnaire is a commonly used and useful tool for gathering survey data because it provides structure, often numerical data, may be administered without the presence of the researcher, and is often very simple to analyze. In this study, the researcher adopted a 5-point Likert scale questionnaire to determine the implications for green supply and management.

### FINDINGS AND DISCUSSION

Content analysis is defined as a technique for examining data derived from numerous sources, including textual material and interviews. Content analysis helps analyze the results based on other findings from the research from other researches. Therefore, content analysis helps uncover all realities and relevant support needed to interpret research results.

**Table 2.** Need to Implement Green Supply Chain Management

Description	SD		D		N		A		SA	
	F	(%)	F	(%)	F	(%)	F	(%)	F	(%)
Climate concern	10	10	10	10	35	35	15	15	30	30
Environmental regulations	3	3	7	7	40	40	25	25	25	25
Preservation of natural resources	15	15	15	15	35	35	15	15	20	20

**Source:** Primary data 2022

The findings on climate concern as the need for green supply chain implementation show that 10% strongly disagree with that view, 35% were neutral, and the other 30% strongly agreed. Respondents to environmental regulations showed that 3% strongly disagreed, 40% were neutral, and the other 30% strongly agreed. Findings on the preservation of natural resources show that 15% strongly disagree, 35% were neutral, and the other 20% strongly agree. The findings concur

with the view that The World Climate change resolutions in 2021 have shown great significance in the need for adopting environmentally friendly supply chain management. In relation to these resolutions, the world has come together to set strategic goals that help enhance environmental sustainability. The world governing body (United Nations) has set aside a budget to finance the transition from fossil fuels to green energy. This budget seeks to assist in setting out green revolution projects. In addition, research conducted by Fortes (2009) pointed out that there is some progress in some parts of Asian countries such as China in developing and adopting the green revolution.

**Table 3.** Success Factors that Promote Green Supply Chain Management

Description	SD		D		N		A		SA	
	F	(%)	F	(%)	F	(%)	F	(%)	F	(%)
Green manufacturing technology practice	15	15	10	10	30	30	15	15	30	30
Green logistics practice	8	8	7	7	35	35	25	25	25	25
Green sourcing strategy	17	17	13	13	30	30	15	15	25	25

**Source:** Primary data 2022

Findings on green manufacturing technology practice as one of the success factors that promote green supply chain management showed that 15% strongly disagreed with the view, 30% were neutral, and the other 30% strongly agreed. Responses to green logistics practice showed that 8% strongly disagreed, 35% were neutral, and the other 30% strongly agreed. Findings on green sourcing strategy showed that 17% strongly disagreed, 30% were neutral, and the other 25% strongly agreed. This factor has set out parameters in environmental management through the adoption of modern environmentally friendly technologies. Green manufacturing technological practices are regarded as the most vital factor that leads to successful implementation of green supply chain management. Research conducted by Murray (2000) in Thailand recommended the implementation of green manufacturing technologies in the electronics industry as it affects operating achievement based on green supply chain. Green logistics practice is another driving factor for successful implementation of green supply chain management. Green logistics refers to reverse logistics that helps to recycle raw materials. Research done by Winch (2003) has regarded green logistics as the second key factor where reverse logistics will concentrate on properly receiving raw material back from customers due to hazardous and durable wastes control. The green sourcing strategy is another factor that leads to green supply chain management practice. Research conducted by Linton (2007) reviewed that all details in the manufacturing process will be regarded beneficial to procurement with a focus on raw material acquirement and packaging, which can be recycled or reused.

**Table 4.** Challenges Faced in Promoting Green Supply Chain Management

Description	SD		D		N		A		SA	
	F	(%)	F	(%)	F	(%)	F	(%)	F	(%)
Regulatory	10	10	10	10	35	35	15	15	30	30
Leadership	3	3	7	7	40	40	25	25	25	25
Limited resources	15	15	15	15	35	35	15	15	20	20

**Source:** Primary data 2022

The findings on regulatory challenges faced in promoting green supply chain management show that 10% strongly disagree with that view, 35% were neutral, while the other 30% strongly agreed. Respondents to leadership showed that 3% strongly disagreed, 40% were neutral, and the

other 30% strongly agreed. Findings on preservation of market or consumer awareness show that 15% strongly disagree, 35% were neutral, and the other 20% strongly agreed. The findings concur with the view, according to [Kamol Kittiwong and Phruksaphanrat \(2011\)](#), regulatory is one of the most critical challenges that affect the successful implementation of green supply chain management. There are still stiff regulations that inhibit green revolution strategies due to political interests and corruption among other countries in the African region. Leadership is one of the main challenges that many organizations face when implementing green supply chain management. According to [Clay and Zimmerer \(2020\)](#), most management positions are held by old age; hence, adaptability to the green revolution becomes a long process to implement due to their resistance to change. Research conducted by [Shah et al. \(2021\)](#) outlined that getting support from top management in implementation of green supply chain management is important because the attitude of top management toward environmental issues and visions directly affects the organization's strategic goals. Market awareness is another challenge that affects green supply management practices. Customers are reluctant to try new products and services; hence, there is a need for organizations to set out a strategic plan to increase awareness and benefits of the green revolution ([Rehman and Shrivastava, 2011](#)).

## **DISCUSSION**

The study managed to explore the implementation of green supply chain practices in selected Zimbabwean organizations. The study paid attention to employees of those organizations as they were the ones that were closely working on ensuring that environmental protection is achieved through the implementation of green supply chains. A total of 120 structured 5-point likert scale questionnaire was issued and only 100 were returned. The majority of the respondents that took part in this study were aged 18-35 and holders of a first degree as a tertiary education qualification. The findings on climate concern as the need for green supply chain implementation show that 10% strongly disagree with that view, 35% were neutral, and the other 30% strongly agreed. Respondents to environmental regulations showed that 3% strongly disagreed, 40% were neutral, and the other 30% strongly agreed. Findings on green manufacturing technology practice as one of the success factors that promote green supply chain management showed that 15% strongly disagreed with the view, 30% were neutral, and the other 30% strongly agreed. The findings on regulatory challenges faced in promoting green supply chain management show that 10% strongly disagree with that view, 35% were neutral, while the other 30% strongly agreed. The overall goal of this study was achieved.

## **CONCLUSIONS**

The study concludes that there is a need to implement green supply chain management practices in Zimbabwean Organizations. The paper has managed to demonstrate the importance of green supply chain management, challenges faced by stakeholders with regard to green supply chain management, and success contributing factors. This paper has proven that green supply chain management is key to the protection of the environment to be free from pollution and capable of handling climate concerns. Challenges faced by Zimbabwean organizations with regard to improving green supply chain practices include poor leadership capabilities, issued regulatory compliance and limited resources. Other key successful factors covered in this paper include green manufacturing technology practice, green logistics practice, and green sourcing strategy. Recommendations have been made that organizations and other stakeholders in Zimbabwe need to produce different strategies that can promote the implementation of green supply chain practices. Among the key recommendations used by modern organizations today include the use of emerging latest technologies in supply chain management, the use of natural resources that can be



recycled and reused and training employees to protect the environment in all possible ways.

### LIMITATION & FURTHER RESEARCH

The findings are based on the current regulatory and economic environment, which may change, potentially affecting the applicability of the results. Future research should explore the long-term impacts of green supply chain management practices in diverse settings and examine the role of evolving technologies and policies. Moreover, the paper now recommends that other studies look into green reversal logistic management as a panacea for smooth implementation of green supply chain practices.

### REFERENCES

- Beamon, B. M. (1999). Designing the green supply chain, *Logistics Inf. Mgmt*, 12(4), 332-342.
- Bell, E., Bryman, A., & Harley, B. (2022). *Business research methods*. Oxford university press.
- Clay, N., & Zimmerer, K. S. (2020). Who is resilient in Africa's green revolution? Sustainable intensification and climate smart agriculture in Rwanda. *Land use policy*, 97, 104558. <https://doi.org/10.1016/j.landusepol.2020.104558>
- Creswell, J. W., & Creswell, J. D. (2017). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage publications.
- Fessehaie, J., Das Nair, R., Ncube, P., & Roberts, S. (2015). Growth Promotion Through Industrial Strategies—A Study of Zambia. <http://dx.doi.org/10.2139/ssrn.2716044>
- Fortes, J. (2009). Green supply chain management: A literature. *Otago Management Graduate Review*, 7(1), 51-62.
- Green, K., Morton, B., & New, S. (1998). Green purchasing and supply policies: do they improve companies' environmental performance?. *Supply Chain Management: An International Journal*, 3(2), 89-95. <https://doi.org/10.1108/13598549810215405>
- Kamolkitiwong, A., & Phruksaphanrat, B. (2011). An analysis of drivers affecting green supply chain management implementation in electronics industry in Thailand. *Sari*, 3. <https://doi.org/10.7763/JOEBM.2015.V3.299>
- Keller, J., Jung, M., & Lasch, R. (2022). Sustainability governance: Insights from a cocoa supply chain. *Sustainability*, 14(17), 10763. <https://doi.org/10.3390/su141710763>
- King, A. A., & Lenox, M. J. (2001). Lean and green? An empirical examination of the relationship between lean production and environmental performance. *Production and operations management*, 10(3), 244-256. <https://doi.org/10.1111/j.1937-5956.2001.tb00373.x>
- Krejcie, R. V., & Morgan, D. W. (1970). Sample size determination table. *Educational and psychological Measurement*, 30, 607-610.
- Kussaga, J. B., Jacxsens, L., Tiisekwa, B. P., & Luning, P. A. (2014). Food safety management systems performance in African food processing companies: A review of deficiencies and possible improvement strategies. *Journal of the Science of Food and Agriculture*, 94(11), 2154-2169. <https://doi.org/10.1002/jsfa.6575>
- Li, Y. (2011). Research on the performance measurement of green supply chain management in China. *Journal of Sustainable Development*, 4(3), 101.
- Linton, J. D., Klassen, R., & Jayaraman, V. (2007). Sustainable supply chains: An introduction. *Journal of operations management*, 25(6), 1075-1082. <https://doi.org/10.1016/j.jom.2007.01.012>
- Mangla, S. K., Kumar, P., & Barua, M. K. (2014). A flexible decision framework for building risk mitigation strategies in green supply chain using SAP-LAP and IRP approaches. *Global Journal of Flexible Systems Management*, 15, 203-218. <https://doi.org/10.1007/s40171-014-0067-8>
- Margallo, M., Ziegler-Rodriguez, K., Vázquez-Rowe, I., Aldaco, R., Irabien, Á., & Kahhat, R. (2019).

- Enhancing waste management strategies in Latin America under a holistic environmental assessment perspective: A review for policy support. *Science of the Total Environment*, 689, 1255-1275. <https://doi.org/10.1016/j.scitotenv.2019.06.393>
- MaRS Discovery District. (2021). *MaRS 2021 Annual Report: Meaningful Innovation Impact Report*. <https://www.marsdd.com/wp-content/uploads/2019/03/MaRS-Impact-Report-Dec-2021-1.pdf>
- Mukeshimana, M. C., Zhao, Z. Y., & Nshimiyimana, J. P. (2021). Evaluating strategies for renewable energy development in Rwanda: An integrated SWOT-ISM analysis. *Renewable Energy*, 176, 402-414. <https://doi.org/10.1016/j.renene.2021.05.104>
- Murray, J. G. (2000). Effects of a green purchasing strategy: the case of Belfast City Council. *Supply Chain Management: An International Journal*, 5(1), 37-44. <https://doi.org/10.1108/13598540010312954>
- Mutandwa, H. (2023). *Urban water infrastructure development in Zimbabwe: The role of public private partnerships* (Doctoral dissertation, University of Johannesburg). <https://hdl.handle.net/10210/504203>
- Ochieng, D. (2019). *Effects of Green Business Practices on an Organization's Performance a case Study of Safaricom Limited, Nairobi-Kenya* (Doctoral dissertation, University of Nairobi). <http://erepository.uonbi.ac.ke/handle/11295/108650>
- Rehman, M. A. A., & Shrivastava, R. L. (2011). An innovative approach to evaluate green supply chain management (GSCM) drivers by using interpretive structural modeling (ISM). *International Journal of Innovation and Technology Management*, 8(02), 315-336. <https://doi.org/10.1142/S0219877011002453>
- Shah, S. M. A., Jiang, Y., Wu, H., Ahmed, Z., Ullah, I., & Adebayo, T. S. (2021). Linking green human resource practices and environmental economics performance: the role of green economic organizational culture and green psychological climate. *International journal of environmental research and public health*, 18(20), 10953. <https://doi.org/10.3390/ijerph182010953>
- Srivastava, S. K. (2007). Green supply-chain management: a state-of-the-art literature review. *International journal of management reviews*, 9(1), 53-80. <https://doi.org/10.1111/j.1468-2370.2007.00202.x>
- Tesla Investor Relations. (2022). *Annual Report on Form 10-K for the Year Ended December 31, 2022 Index*. [https://ir.tesla.com/\\_flysystem/s3/sec/000095017023001409/tsla-20221231-gen.pdf](https://ir.tesla.com/_flysystem/s3/sec/000095017023001409/tsla-20221231-gen.pdf)
- Tippayawong, K. Y., Tiwaratreewit, T., & Sopadang, A. (2015). Positive influence of green supply chain operations on Thai electronic firms' financial performance. *Procedia engineering*, 118, 683-690. <https://doi.org/10.1016/j.proeng.2015.08.503>
- Winch, J. K. (2003). Supply chain management: strategy, planning, and operation. *International Journal of Quality & Reliability Management*, 20(3), 398-400. <https://doi.org/10.1108/02656710310461350>
- Zhu, Q., & Sarkis, J. (2007). The moderating effects of institutional pressures on emergent green supply chain practices and performance. *International journal of production research*, 45(18-19), 4333-4355. <https://doi.org/10.1080/00207540701440345>