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# Barriers to Implementation of Environmental Management Accounting in South African Small and Medium Enterprises for Sustainable Performance

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ABSTRACT

The key aim of the study is to establish barriers to environmental management accounting (EMA) adoption by manufacturing small and medium enterprises (EMA) in Gauteng province, South Africa from an institutional theory standpoint. To attain the aim of the study 34 in-depth interviews were undertaken with manufacturing SME owners and managers on 34 SMEs. Thematic analysis was adopted to analyze interview transcripts and revealed that lack of government support, financial barriers, lack of incentives to adopt EMA, and absence of guidance to adopt EMA are acting as barriers of SMEs in South Africa from adopting EMA. As a result, the study proposes various incentives such as tax concessions and discounts on eco-materials to encourage SME EMA adoption. Also, the government should take center-stage in making available green training and amplifying awareness of environmental management within SMEs in South Africa. Overall, the study would help regulators and policymakers to align regulations and green strategies with factors that hinder EMA adoption in a ploy to overcome them.

## INTRODUCTION

Small and medium-sized enterprises (SMEs) remain liable for an important size of the global ecological burden as they are accountable for about 70% of the worldwide pollution and 60% of the entire carbon emissions (Alberto & Erlantz, 2019; Dasanayaka et al., 2022). Additionally, it has been projected that the combined environmental impact of SMEs is greater than the impact of large corporations, as SMEs represent three-quarters of the worldwide economy (Agan et al., 2013; Armas-Cruz et al., 2017; Buffa et al., 2018). Considering this, a large number of studies have been conducted focusing on environmental management by SMEs.

However, the SME sector in South Africa is a strategic sector due to its generation of extraordinary economic growth and development therefore lessening unemployment. In South Africa SMEs are responsible for 90% of the total number of enterprises, providing 45% of employment and contributing 52% of gross domestic production (Maziriri, 2020). Despite these positive national developments, the SME sector in South Africa also heavily contributes to negative environmental impacts, particularly the manufacturing SMEs. This positions SMEs as favorable contenders to scrutinize their barriers to implementing environmental management practices.

The environmental literature has extensively focused on the character of large corporations in environmental degradation leaving little attention focused on SMEs, despite their intense contribution to the status of the economy, society, and natural environment. Hence, researchers are accepting that involving the SME sector in ecological sustainability issues can contribute to environmental well-being (Cantele et al., 2020; Ezeagba et al., 2017; Lucato et al., 2017). To ensure corporate ecological sustainability by SMEs, an accounting system known as environmental management accounting (EMA) can be used (Christine et al., 2019; Ikpor et al., 2019). This means that one of the strategies being used to warrant sustainability in modern years is EMA. EMA can be defined as the "identification, collection, analysis, and use of a

broad scope of information for internal decision-making" (Christ, & Burritt, 2013).

Nonetheless, regardless of the significance and gains of EMA, its implementation level is still below expected and weak in SMEs in developing countries such as South Africa (Engert & Baumgartner, 2016; Dasanayaka et al., 2022; Lee & Schaltegger, 2018). On the other hand, scholars have emphasized that SMEs in emerging markets such as South Africa have received little attention in the evaluation of the obstructions to EMA adoption (Alberto & Erlantz, 2019; De-Steur et al., 2020; Das et al., 2020). In line with these claims, it is significant to establish the factors hindering SMEs in the manufacturing sector to adopt EMA systems despite being major contributors to negative environmental impacts. This is important because South Africa in line with the Paris Agreement is presently approaching a green economy, yet no study has so far examined the barriers to EMA adoption by the SMEs. Therefore, the main aim of this research paper is to establish the barrier factors in adopting EMA among manufacturing SMEs in South Africa.

Corporations are extremely exposed to numerous levels of stakeholder coercions and demands and given this they must respond to external demands. Institutional theory describes that corporations are open to the pressure of the business environment and attached to society. This theory mainly explains the interrelationship between social environment and corporate patterns (Famiol & Wulansari, 2020; Garidzirai, 2020; Kim & Kim, 2018). Corporate attitudes in the direction of social contact are determined by three categories of institutional pressure namely coercive, normative, and mimetic (Ismail & King, 2014; Kumar & Bhatia, 2021; Mthombeni, et al., 2023). Institutional theory has been broadly used in the organizational response to ecological challenges at a conceptual level, and numerous research has been undertaken to comprehend corporate ecological and social behavior and triggers of green adoption (Johnson & Schaltegger, 2016; Masurel, 2007) yet few ought to evaluate barriers of EMA adoption in SMEs.

The theory underlines in what way external forces linked to industrial and non-industrial constituents form a corporation's environmental efforts. It directs the combative position of the environmental demands and the corporate's environmental performance (Setiawan & Izzaty, 2021; Latan et al., 2018). Coercive pressure emerges from the government and regulatory agencies, chiefly because of formal and informal political impacts. The coercive impact is imperative for corporations to toe the line to numerous environmental rules (Nguyen et al., 2020; Gunarathne et al., 2020).

In practical terms, coercive influence at the corporate level may emerge from corporations' legal and regulatory stakeholders. Mimetic pressure denotes competitive benchmarking; organizations seem to follow or mimic the activities of effective competitors (Mahmood et al., 2017). In the environmental setting, the mimetic impact is important in choosing green strategies (Qian et al., 2015) to evade "legitimacy concerns" and "ensure the competitive advantage" (Johnstone, 2020). As per Qian et al. (2015), normative pressure is linked to professionalism and stems from industry representatives, academic and professional bodies, and additional social players. A corporation's green strategy is greatly dependent on normative pressure as it improves the corporation's reputation and financial performance (Famiola & Wulansari, 2020; Li, 2014).

Environmental researchers have asserted that various institutional pressures perform critical roles in enhancing the ecological management of SMEs and large organizations in emerging markets such as South Africa (Famiola & Wulansari, 2020; Christine et al., 2019). To attain green status in the SME sector, there is a considerable need to address numerous institutional influences for SMEs to be recipients of ecological results and the architects of those results (De-Steur et al., 2020). Conversely, it has been broadly identified that SMEs' contribution to negative ecological impacts in emerging economies is significant. Regrettably, a lot of SMEs do not have articulate policies for the design and adoption of EMA practices, and most act on an ad hoc basis (Johnson, 2015; Juárez-Luis et al., 2018), which may influence their long-term financial and ecological sustainability. Hence, from an institutional theory perspective, it is vital to understand the reasons that hamper SMEs' advancement in the direction of EMA adoption.

## MATERIALS AND METHODS

In response to research questions, this study used in-depth interviews concentrating on 34 SMEs to gather empirical data. To establish reasons hindering manufacturing SMEs in Gauteng from adopting EMA, 34 interviews involving SME owners and managers were undertaken. Interviews provide the opportunity to gather rich descriptive evidence as they make available a good platform to promote follow-up questions (Miklosik & Evans, 2021; Le & Nguyen, 2018). EMA is still little known and at an infancy stage in South Africa (Nyide, 2019). Corbin and Strauss (2008) conclude that interviews are appropriate when investigating a new field of study. Saunders et al. (2012) specify that the qualitative research approach concentrates on understanding and detecting the experiences of the study's participants. For instance, a particular factor can act as a hindrance to SMEs adopting EMA; in-depth interviews in this instance avails a solid understanding of the reason why such a factor obstructs EMA use than the survey approach. Additionally, purposive sampling was applied to select manufacturing SMEs based on a particular criterion. However, Gauteng was chosen among other provinces in South Africa because of being the country's economic hub (Mbedzi et al., 2020) and as a result undergoing immense social changes (Nyide, 2019). Bananuka et al. (2021) argue that EMA is most likely to be adopted and applied by firms that are experiencing better economic performance. Furthermore, according to Dasanayaka et al. (2022), cities or states that are experiencing social changes, such as the taking up of the market system, are an attractive target of inquiry.

The study opted to ignore micro-SMEs (those with fewer than ten employees) as projected that SMEs of that calibre more often than not tend to overlook adopting the essentials of EMA tools. As such, the research study concentrated on manufacturing SMEs in Gauteng province with no less than eleven people but not more than 500. The manufacturing SMEs were selected due to the traditional assumption that views the manufacturing sector as mainly responsible for worldwide negative environmental effects (Dasanayaka et al., 2022; Fonseca et al., 2020; Jamil et al., 2015).

An adequate sample of SMEs was applied. For instance, using in-depth interviews researchers such as Rajapakse et al. (2022) adopted a sample of 16 SMEs in their study. The reliability of the gathered data was amplified by respondents asked the same interview questions. The SMEs participants were also in charge of reading the transcripts for correctness.

The interview guide was designed with particular reference to the corporate green awareness barriers available in the environmental literature. The interview guide was grounded on the contentions submitted by Rajapakse et al. (2022) that the attitude-behavior gap is caused by "responsibility, practicality, and individual barriers." In addition, SME owners and top managers are important decision-makers for strategies and practices on environmental management.

Each interview's transcripts were transcribed based on Braun & Clarke (2006) thematic analysis techniques through coding. Bananuka et al. (2021) argue that theme or pattern establishment is critical to data conceptualization. Bastable et al. (2018) affirm that this approach is most appropriate for acquiring a profound understanding of the actual behavior, attitudes, or real motives of the people.

## RESULTS AND DISCUSSION

A detailed analysis of the interview transcripts shows the ensuing barriers to EMA adoption by manufacturing SMEs in Gauteng province, South Africa.

### Lack of Government Support

The absence of government's environmental initiatives and incentives plays a critical in hampering SME corporations in South Africa from implementing EMA. In this case, the government is considered as a source of motivation to adopt EMA tools. In this study, 27 of the 34 interviewees confirm that the absence of government support and incentives is effectively barricading SMEs in South Africa from using EMA tools. According to one interviewee, "Without government support on environmental matters, us SMEs find it difficult to spearhead environmental management initiatives". This suggests that for SMEs to understand the importance of adopting environmental management practices, the government has to be at the forefront through various approaches and strategies such as environmental training, development, and incentives (Narmanov, 2020). These incentives can

include tax concessions and subsidies on environmental initiatives that are at present not relevant to SMEs in South Africa. Similarly, SMEs in Sri Lanka report the absence of government support as a factor hindering the adoption of green initiatives (Rajapakse et al., 2022).

Given the above position, this provides further evidence that the lack of coercive institutional intervention is acting as a barrier to EMA adoption in SMEs. This is supported by Dasanayaka et al. (2022) and Isaac et al. (2019) that government agencies' environmental actions should be a trigger for adopting EMA. Another interviewee implored the government to act in a manner that upholds environmental management values within SMEs. The interviewee said: "I propose that government should be more visible in SMEs in preaching about environmental management and teaching owners and managers of the small businesses on the best strategies to improve environmental performance". This indicates that policymakers and regulators in South Africa ignore to develop of rigorous regulations and green policies to ensure an environmental management practices adoption drive by the SME sector. In view of that, institutional constraints are noteworthy barriers to adoption of environmental management practices and initiatives for South Africa SMEs because of lack of professional and institutional collaborations leading to a poor green culture. This leads to a low degree of implementation of sustainable environmental management practices in the SME community. As a result, this means that SMEs in South Africa remain with a low level of environmental awareness.

**Financial Barrier**

As expected, the interviews underlined that SMEs lack the financial strength to upgrade to modern and environmentally sustainable technologies. As observed by one SME manager, "The cost of implementing environmental management practices remains a deterrent. We currently do not have such a big in investment. Price competition is our key everyday challenge. If we implement new technologies, we cannot afford the cost." This signifies the importance of financial barriers to adopting EMA initiatives. This is further augmented by the fact that the government is apprehensive in extending financial assistance to SMEs. This is supported by another interviewee's feedback that "There are no eco-loans. If we need a loan from the bank, we have to provide significant collateral which is a very difficult exercise. The process is very complicated in contrast to the way it is promoted." Contemporary environmental literature also provides to support this finding. Rajapakse et al. (2022) and Jan et al. (2019) observe that a lack of adequate financial resources is acting as a barrier to EMA adoption. This means that most governments in developing countries remain focused on economic development rather than reducing environmental impacts.

Extant literature has shown that financial barrier acts as a mainstream construct in alleviating climate change. Buffa et al. (2018) postulate that low financial performance by SMEs in emerging markets is likely to remain a factor highly contributing to ecological degradation due to the absence of resources to invest in green innovation. This suggests the need by the government to provide collateral for SMEs to secure funding to invest in green technology.

**Low Incentives to Adopt EMA**

Environmental literature confirms that most corporate organizations are adopting environmental management practices to upswing financial performance (De-Steur et al., 2020; Famiola & Wulansari, 2020; Jamil et al., 2015). This is reiterated by various scholars and researchers that without anticipated financial benefits companies are unlikely to implement EMA practices. This is no exception to SMEs in South Africa. One SME owner acknowledges that "It is difficult for me to delve into projects and initiatives that offer no financial return. We operate on a strict budget and limited financial resources. So, anything that we spend money on has to be in a good position to in turn augment our financial position in a very short term." This suggests that the lack of clear incentives to implement EMA is a key obstacle to SMEs' EMA adoption (Johnson, 2015; Juárez-Luis et al., 2018). As underscored by the interviewees, the government should commit itself to providing motivation for SMEs to effectively apply EMA tools in a more stringent manner within their day-to-day operations. This is because the interviewees argue that the major reason for establishing their SMEs is profit maximization. Therefore, anything that puts profit maximization on risk is eliminated. However, this is of paramount importance because the government in South Africa largely focuses on

large firms for environmental management (Nyide, 2019).

The low incentives to adopt EMA imply that SMEs concentrate on survival as opposed to sustainability. Setiawan and Izzaty (2021) argue that owners' interest for environmental issues conflicts with short-term economic interests. This is noted in the empirical findings as stated by one SME owner, "Our intention is not to damage the environment. We are in a price war; we have to achieve our short-term objective at the expense of the environment." Therefore, the absence of motivation to adopt EMA practices is acting as a barrier in South African SMEs to adopt EMA.

The participants' responses further support the view that EMA is a source of financial loss. Das et al. (2020) note that EMA adoption could lessen financial profit in the short run. However, Christine et al. (2019) question if EMA adoption helps firms in the long run. Therefore, it is important for SMEs managers and owners to undergo EMA training to understand that EMA is not only costly exercise but also a strategic instrument that can boost corporate performance.

**Absence of Guidance on EMA Adoption**

Another group of interviewees believes that without the guidance of an SME-sector specific guidance on adopting EMA remains a major obstacle to using EMA within SMEs in South Africa. The perception of one manager was: "No, I'm not aware of how I implement the environmental management practices within our company. Government should provide us with guidelines of adopting these tools within our day-to-day operations". Setthasakko (2010) argues that without clear procedures and a sector-specific framework, EMA adoption remains a key challenge within industrial sectors. In line with this, the absence of a sector-specific model framework or guidelines signifies a lack of EMA adoption within SMEs in South Africa. Governments in emerging economies such as South Africa may not put much attention on SMEs on environmental matters because the individual SMEs' negative environmental impact is immaterial (Cantele et al., 2020; Jalil et al., 2016). Furthermore, owing to the absence of an SME-sector specific model in South Africa, managers/owners are less motivated to implement EMA and, therefore, less aware of the pertinent environmental gains. This stance was empirically confirmed by one interviewee, "My business does hire many qualified employees, so it is quite difficult to get an employee with the right skills and knowledge to implement environmental management practices. Why should I endure the additional cost of getting someone to help me with guiding my company with implementing environmental management" This indicates a void existing within SMEs in terms of guidance on EMA adoption in South Africa. SMEs remain a major constituent in greening the economy and ensuring that developing countries can operate within the various international treaties such as the Paris Agreement and Kyoto Protocol.

In support of the above arguments, Latan et al. (2018) noted that companies are less likely to implement EMA if no implementation guidelines are made available to them. In that case, national governments such as Japan and Germany developed EMA implementation guidelines for the corporate sector. In Japan, Kokubu et al. (2014) assert that the developing of EMA implementation guidelines by the government increased EMA adoption by 40%. In that same breadth, it is also important that the South African government and other environmentalists help firms implement EMA activities through developing implementation guidelines.

## CONCLUSION

This study aimed at availing qualitative perceptions into the barriers of EMA adoption in SMEs in South Africa. South Africa is a developing country presently developing an acute challenge in environmental management (Doorasamy, 2019; Garidzirai, 2020). The study's results make available profound implications for academia, policymakers, and the SME community. The study used a qualitative research methodology to identify barriers to EMA adoption. The major empirical result emerging from the study is that weak institutional pressure contributes to obstructing EMA adoption within the SMEs in South Africa.

The study results show that a number of the interviewees were aware that environmental management is important to achieve sustainability. Despite this, the interviewees (managers/owners) indicated various reasons barricading them from adopting EMA tools and practices. Most managers and owners report that lack of government support,

financial barriers, low incentives to adopt EMA, and absence of EMA adoption guidance as barriers to effective implementation of EMA. Therefore, it is significant to advance market-based approaches such as tax concessions and discounts on eco-materials to inspire SME green commitment. Also, the government should take the lead in providing green training and increasing awareness of eco-innovation and current environmental management practices might lessen individual barriers to EMA adoption.

Even though this study made available fruitful implications, the authors recognize certain limitations. The study applied the South African definition of SMEs, precisely due to the absence of a global standard definition of SMEs. This calls for future research to undertake an evaluation grounded on a sampling frame with different SME definitions, matched with the results of this study. The smallest SMEs, those with ten or less employees were excluded from this study therefore future studies may explore this population. Additionally, this study examined barriers to EMA adoption chiefly from an SME sector standpoint. For that reason, future studies may involve the views of regulators and policymakers to mine solid insights into which way these barriers can be overwhelmed and come up with appropriate green strategies.

## REFERENCES


Agan, Y., Acar, M. F., & Borodin, A. (2013). Drivers of environmental processes and their impact on performance: a study of Turkish SMEs. *Journal of Cleaner Production*, 51, 23-33.

Alberto, D. J., & Erlantz, A. (2019). The adoption of environmental management systems based on ISO 14001, EMAS, and alternative models for SMEs: A qualitative empirical study. *Sustainability*, 11, 2–17.

Armas-Cruz, Y., Gil-Soto, E., & Oreja-Rodríguez, J. R. (2017). Environmental management in SMEs: Organizational and sectoral determinants in the context of an outermost European region. *Journal of Business Economics Management*, 18(5), 935–953.

Bananuka, J., Bakalikwira, L., Nuwagaba, P. & Tumwebaze. 2021. Institutional pressures, environmental management practices, firm characteristics and environmental performance. *Accounting Research Journal, 9:1-29.*

Bastable, E., Meng, P., Falcon, S.F. & McIntosh, K. 2018. Using an embedded mixed methods design to assess and improve intervention acceptability of an equity-focused intervention: A methodological demonstration. *Behavioural Disorders*, 6(9), 1-11.

Buffa, F., Franch, M., & Rizio, D. (2018). Environmental management practices for sustainable business models in small and medium sized hotel enterprises. *Journal of Cleaner Production*, 194, 1–21.

Cantele, S., & Zardini, A. (2020). What drives small and medium enterprises towards sustainability? Role of interactions between pressures, barriers, and benefits. Corporate *Social Responsibility and Environmental Management*, 27(1), 126–136.

Christ, K. L., & Burritt, R. L. (2013). Environmental management accounting: The significance of contingent variables for adoption. *Journal of Cleaner Production*, 41, 163–173.

Christine, D., Yadiati, W., Afiah, N., & Fitrijanti, T. (2019). The relationship of environmental management accounting, environmental strategy and managerial commitment with environmental performance and economic performance. *International Journal of Energy Economics and Policy*, 9, 458–464

Corbin, J., & Strauss, A. (2008). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. California: Sage Publications.

Das, M., Rangarajan, K., & Dutta, G. (2020). Corporate sustainability in SMEs: An Asian perspective. *Journal of Asia Business Studies*, 14(1), 109-138.

Dasanayaka, C. H., Gunarathne, N., Murphy, D. F., & Nagirikandalage, P. (2022). Triggers for and barriers to the adoption of environmental management practices by small and medium-sized enterprises: A critical review. *Corporate Social Responsibility and Environmental Management*, 29(4), 749–764

De-Steur, H., Temmerman, H., Gellynck, X., & Canavari, M. (2020). Drivers, adoption, and evaluation of sustainability practices in

Italian wine SMEs. *Business Strategy and the Environment,* 29(2), 744–762.

Doorasamy, M. (2019). Material flow cost accounting practices and resource efficiencies in South African sugar industry. (*Ph.D. Thesis*). University KwaZulu Natal.

Engert, S. & Baumgartner, R.J. 2016. (2016). Exploring the integration of corporate sustainability into strategic management: a literature review. *Journal of Cleaner Production*, 11(6):2833-2850

Famiola, M., & Wulansari, A. (2020). SMEs' social and environmental initiatives in Indonesia: An institutional and resource-based analysis. *Social Responsibility Journal*, 16(1), 15-27.

Fonseca, P. C., Ferreira, F. A. F., Pereira, L. F., Govindan, K., & Meidute-Kavaliauskiene, L. (2020). Analyzing determinants of environmental conduct in small and medium-sized enterprises: A sociotechnical approach. *Journal of Cleaner Production*, 256, 120380.

Garidzirai, R. (2020). Time series analysis of carbon dioxide emission, population, carbon tax and energy use in South Africa. *International Journal of Energy Economics and Policy*, 10(5), 353-360.

Gunarathne, A.D., Lee, K. & Kaluarachchilage, P. H.K. (2020). Institutional pressures, environmental management strategy, and organizational performance: The role of environmental management accounting (EMA). *Business Strategy and the Environment,* 30, 825-839.

Ikpor, I., Ituma, E. & Okezie, B.N. (2019). Environmental accounting and sustainable financial performance: evidence from the Nigerian petroleum industry. *International Journal of Applied Environmental Sciences*, 14(1), 85-93.

Isaac, M. I., Enuma, I. & Okezie B.N. (2019). Environmental accounting and sustainable financial performance: Evidence from the Nigerian petroleum industry. *International Journal of Applied Environmental Sciences*, 14(1), 85-94.

Ismail, N. A., & King, M. (2014). Factors influencing the alignment of accounting information systems in small and medium sized Indonesian manufacturing firms. *Journal of Information Systems and Small Business*, 1(1-2), 1-20.

Jalil, M.H., Abar, M.N. & Dadashian, F. 2016. Environmental management accounting model on the basis of environmental management system in leather industry. *International Journal of Environmental Science and Development*, 7(1), 52-61.

Jamil, C. Z. M., Mohamed, R., Muhammad, F., & Ali, A. (2015). Environmental management accounting practices in small and medium manufacturing firms. *Procedia-Social and Behavioral Sciences*, 172, 619–626.

Jan, A., Marimuthu, M. & Pisol, M. 2019. The nexus of sustainability practices and financial performance: from the perspective of Islamic banking. *Journal of Cleaner Production*, 228 (2019), 703-717.

Johnson, M. P. (2015). Sustainability management and small and mediumsized enterprises: managers' awareness and implementation of innovative tools. *Corporate Social Responsibility and Environmental Management*, 22(5), 271–285.

Johnson, M. P., & Schaltegger, S. (2016). Two decades of sustainability management tools for SMEs: how far have we come? *Journal of Small Business Management*, 54(2), 481-505.

Johnstone, L. (2020). A systematic analysis of environmental management systems in SMEs: Possible research directions from a management accounting and control stance. *Journal of Cleaner Production*, 244, 118802.

Juárez-Luis, G., Sanchez-Medina, P., & Díaz-Pichardo, R. (2018). Institutional pressures and green practices in small agricultural businesses in Mexico: The mediating effect of farmers' environmental concern. *Sustainability*, 10(12), 1–18.

Kim, T. & Kim, B. (2018). Firm‘s environmental expenditure, R&D intensity, and profitability. *Sustainability*, 10:1-12.

Kokubu, Katsuhiko, and Hirotsugu Kitada. (2014). Material flow cost accounting and existing management perspectives. *Journal of Cleaner Production*, (108), 1279-1288.

Kumar, S. & Bhatia, M.S. (2021). Environmental dynamism, industry 4.0 and performance: Mediating role of organizational and

technological factors. *Industrial Marketing Management*, (95), 54-64.

Latan, H., Jabbour, C.J.C., de Sousa Jabbour, A. B. L., Wamba, S.F. & Shahbaz, M. (2018). Effects of environmental strategy, environmental uncertainty and top management's commitment on corporate environmental performance: The role of environmental management accounting. *Journal of Cleaner Production*, (180), 297-306

Le, T.T. & Nguyen, T.M.A. (2018). Practice environmental cost management accounting: The case of Vietnamese brick production companies. *Management Science Letter*, (9), 105–120.

Lee, K. & Schaltegger, S. (2018). *Accounting for sustainability: Asia Pacific Perspectives*, New York and London: Springer.

Li, Y. N. (2014). Environmental innovation practices and performance: Moderating effect of resource commitment. *Journal of Cleaner Production,* (66), 450–458.

Lucato, W.C., Costa, E.M., & de Oliveira Neto, G.C., (2017). The environmental performance of SMEs in the Brazilian textile industry and the relationship with their financial performance. *Journal of Environmental Management*, (203), 550-556.

Mahmood, Z., Ahmad, Z., Ali, W. & Ejaz, A. (2017). Does environmental disclosure relate to environmental performance? Reconciling legitimacy theory and voluntary disclosure theory. *Pakistan Journal of Commerce and Social Sciences*, 11(I), 1134-1152.

Masurel, E. (2007). Why SMEs invest in environmental measures: sustainability evidence from small and medium-sized printing firms. *Business Strategy Environment*, 16(3), 190-201.

Maziriri. E. T. (2020) Green packaging and green advertising as precursors of competitive advantage and business performance among manufacturing small and medium enterprises in South Africa, *Cogent Business & Management,* 7(1), 1719586.

Mbedzi, D. M., van der Poll, M. & van der Poll, J. (2020). Enhancing a decision-making framework to address environmental impacts of the South African coalmining industry. *Energies*, 13, 1-23.

Miklosik, A. & Evans, N. (2021). Environmental sustainability disclosures in annual reports of mining companies listed on the Australian Stock Exchange (ASX). *Heliyon*, 7(2021), 1-11.

Mthombeni, A., Obert, S., Juet, N., Bronson, M., & Sydney, M. (2023). Challenges and Prescriptions to Corporate Governance Issues Facing State-Owned Enterprises (SOEs): A Zimbabwean Perspective. *Indonesian Journal of Innovation and Applied Sciences* (*IJIAS*), 3(3), 252-263.

Narmanov Ulugbek Abdugapparovich. (2020). Measures to Ensure Employment in Uzbekistan Through the Support of Small Business and Entrepreneurship. *Indonesian Journal of Social and Environmental Issues* (*IJSEI*), 1(2), 69-72.

Nguyen, T. M. H., Nguyen, T. K. T., & Nguyen, T. T. V. (2020). Factors affecting the implementation of environmental accounting by construction companies listed on the Ho Chi Minh Stock Exchange. *Journal of Asian Finance, Economics, and Business*, 7(8), 269–280.

Nyide, C.J. (2019). Better resource management: A qualitative investigation of environmental management accounting practices used by the South African hotel sector. *African Journal of Hospitality, Tourism and Leisure,* 8(4), 1-10.

Qian, W., Burritt, R., & Chen, J. (2015). The potential for environmental management accounting development in China. *Journal of Accounting & Organisational Change*, 11(3), 406-428.

Rajapakse, R., Azam, S. & Khatibi, A. (2022). Towards green credentials of SMEs: Qualitative insights on barriers to green responsiveness from a developing economy. *International Journal of Applied Economics, Finance and Accounting*, 15(1), 15-24.

Saunders, M., Lewis, P. & Thornhill, A. (2012). *Research methods for business students*. 6th ed. London: Pearson Education Limited.

Setiawan, E., & Izzaty, K. N. (2021). Analysis of Management Accounting Systems Affecting Energy Efficiency, Environmental

Uncertainty and Environmental Performance of Small and Medium Enterprises. *Journal of Applied Sciences in Accounting, Finance, and Tax*, 4(1), 77-90.

Setthasakko, W. 2010. Environmental management accounting: An exploratory study of pulp and paper companies in Thailand. *Euromed Journal of Business*, 5(3), 315-331.