Exploring the Evolvement of Environmental Management Accounting Practices for Achieving SMEs' Sustainability in an Emerging Economy

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Abstract

It has been recognised that the information derived from Management Accounting Practices (MAPs) is invaluable for the strategic decision-making processes of businesses and thereby enables better environmental performance. Businesses have recognised MAPs as a viable approach to drive their businesses towards sustainability. Hence, this study was carried out in an emerging economy i.e. Sri Lanka where the aim of this research is to explore the application of MAPs within SMEs for managing ecological issues. Two qualitative studies, netnography followed by semi structured interviews, were implemented to obtain an in-depth perspective of the application of MAPs and their impact of managing ecological issues of SMEs. The findings imply that although MAPs assist SMEs for their internal control in terms of ecological costing, there remains some challenges for SMEs especially regarding waste management due to other barriers.

Key words: Environmental Management Accounting Practices, SME, Sustainability, Emerging Economy, Netnography

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1. Introduction

Small-medium enterprises (SMEs) have made significant economic contributions globally towards poverty alleviation, women empowerment and employment (Perrini & Tencati, 2006; Aris, 2007; Singh et al., 2008; Okpara, 2011; Tambunan, 2011; European Commission, 2017). According to the OECD (2017), SMEs in emerging economies contribute 45% and 33% to further employment and national

income generation. Although their economic growth remains core, SMEs are increasingly focusing on social and ecological performance to gain a competitive advantage, although economic growth remains core (Hart and Milstein, 2003; Porter and Kramer, 2006).

Initiatives started by SMEs to incorporate social and ecological performance have emerged, focusing on sustainability and development (Albelda, 2011). Because of these initiatives to show SMEs' obligation to sustainable development, there is an increasing demand for management accounting practices (MAPs) to manage ecological performance (Albelda, 2011). Widely accepted schemes for SMEs, such as the European Community's Eco-Management and Audit Scheme, which produces a public environmental statement about SMEs' environmental performance, are available (Wätzold, 2009). Albelda (2011) has also mentioned that MAPs could be considered a facilitator in integrating ecological performance in SMEs' strategic planning and decision-making process. Accordingly, most contemporary SMEs have recognised the feasibility of MAPs to drive sustainability (Schaltegger and Burritt, 2010).

Apart from ecological performance, SMEs are currently at risk of degrading their sustainability due to pressures such as globalisation, technological advancement, intensified market competition, financial capital constraints and other competitive issues (Mat, 2010; Messner, 2016; Azudin and Mansor, 2017). Hence, there is an imminent need for a robust and efficient mechanism as a source of generating precise financial and non-financial information to strengthen their survival in the marketplace (Senftlechner and Hiebl, 2015). Previous studies (Bennett and James, 1997; Reid and Smith, 2000; Lopez and Hiebl, 2015) have indicated that the application of MAPs is one way for SMEs to rejuvenate themselves to survive and achieve sustainability in transforming environments where ecological performance is challenging. Ahmad (2012) illustrated that the application of MAPs could substantially enhance the financial performance of businesses by improving the efficacy of managerial performance. An example would be reducing wastage and utilising resources effectively by referring to the information provided through MAPs.

Following the above rationales, this study aims to explore the application of MAPs within SMEs for managing ecological issues. Accounting practice provides innovative decision-making and control for achieving SMEs' social and environmental performance (Gray and Bebbington, 2001). However, there is less evidence in MAPs promoting efficient and effective decision making, explicitly considering environmental and sustainability indicators (Adams & Frost, 2008; Durden, 2008; Berry et al., 2009). There is also a lack of research investigating the contribution of MAPs to the social and ecological aspects of SMEs (Parker, 2005; Adams & Larrinaga-González, 2007). This research tries to fill this gap in the existing literature. A noticeable paucity of evidence of the application of MAPs is evident (Duller et al., 2011; Prencipe et al., 2014; Senftlechner and Hiebl, 2015; Helsen et al., 2017). Existing research is mainly related to ecological issues in emerging economies (Hopper and Hoque, 2004, Alawattage et al., 2007; Hopper et al., 2009; Herzig et al., 2012; Gunaratne & Lee, 2015; Hopper & Bui, 2016). Consequently, this research investigates the application and challenges of MAPs in overcoming ecological issues for SMEs' sustainability in an emerging market such as Sri Lanka.

This paper is divided into five sections. Section 1 presents the rationales and introduction of this paper. The key literature addressing the main concepts related to this study is delineated in Section 2. Section 3 discusses the research methods adopted in the study, and Section 4 presents the study's findings. Last, Section 5 offers the conclusion of this study.

2. Literature Review

This section investigates SMEs' sustainability and application of MAPs to manage ecological issues. SMEs are defined with various criteria namely, number of employees, turnover, production volume, capital investment and net assets (Ayyagari et al., 2007). Since SMEs are facing barriers when applying MAPs to manage ecological issues it is interesting to understand the gap in this literature especially

relating to the emerging economies. Since SMEs contribute largely to the gross domestic production (GDP) while generating enormous employment opportunities across the world, the survival of SMEs is crucial for the wellbeing of the global economy. Hence, there is a need to explore feasible strategies to ensure their long-term sustainability.

Sustainability of SMEs:

Elkington (2010) defined corporate sustainability as extending the life expectancy of societies (the cultures and communities that reinforce commercial activity), ecosystems (the natural resources they provide) and economies (that provide the governance, financial and other market context for corporate competition and survival). Accordingly, a few environmental and social assessment tools (such as environmental assessment tools in 1970s, life cycle management and social management accounting tools in 1980s) were introduced to evaluate the efficacy of the environmental and social performance of businesses for ensuring their sustainability (Elkington, 2010; Abdel-Kader & Luther, 2006). Hence, the application of MAPs became an information generator and also a mediator to make precise decisions on the sustainability performance for pursuing businesses towards their sustainability goals (Schaltegger and Burritt, 2010; Bennett and James, 1997). Also, most of businesses started publishing information on their environmental sustainability performance generated by MAPs as a business strategy to attract more customers, particularly the ones who are more fascinated to have eco-friendly products/services. According to Chavan (2005), pollution prevention is the start of a sustainable

system if environmental management where managing environmental performance has becoming a strategic issue for many organisations by resolving environmental and resource conservation issues (Thompson, 2002) with cost reduction and perceiving it as an institutionalised organisational task (Weerasiri & Zengang, 2012). Since the environment is considered as an asset and due to the requirement of becoming more environmentally responsible - in addition to the improved quality, cost reduction, reduction in lead time, etc, (Monatabon et al., 2000), SMEs have to consider environmental performance as a vital portion of sustainable development (Hillary, 2004).

Overview of MAPs and their application in SME context

MAPs began to evolve with multi-disciplinary management tools including sophisticated practical techniques to enhance the efficacy of the internal decision-making process of businesses to meet the requirement of the rapidly changing external environment (Scapens, 1994; Kaplan and Atkinson, 1998). With the emergence of the issues relating to scarcity of natural resources, sustainable MAPs or EMAPs are needed by SMEs for their sustainability (Elkington, 2010, Abdel-Kader & Luther, 2006). MAPs have been split into five major categories namely, costing systems, budgeting planning and control, performance evaluation, decision support, and strategic analysis system to make it easy to explore their application in different business contexts (Abdel-Kader & Luther, 2006; Ahmad, 2012). The size of the business serves as a predictor of the business complexity. The application of MAPs would be a robust system to control the complexity of SMEs since MAPs have a better ability to coordinate different departments via strategic management, planning, budgeting and controlling (Moores and Mula, 2000). Hence, application of MAPs within SMEs could be advantageous due to their size and structure as well (Hiebl et al., 2013; Senftlechner et al., 2015; Neubauer et al., 2012; Speckbacher and Wentges, 2012; Feldbauer-Durstmüller et al., 2012). However, SMEs have less interest in applying MAPs within their businesses (Durendez. et al., 2016; López and Hiebl, 2015; Marriott and Marriott 2000). In contrast, the study of Chand and Dahiya (2010) confirmed that there is no difference in applying MAPs by SMEs due to the intense competition within the industries.

Barriers for the application of MAPs to manage ecological issues

SMEs have identified internal and external barriers (Hillary, 2004) such as implementation cost, time duration, legal and regulatory barriers, organisational procedures and lack of knowledge of the area, for the application of MAPs to manage ecological issues (Allison & John, 2010; Rajapakse, 2008). Hence, information availability and financial support for implementation could be appropriate for SMEs. Moreover, attitude towards managing ecological issues (Petts et al., 1999; Williams et al., 2000; Schaper 2002) could be a barrier for the adoption of such MAPs (DeCanio, 1998; Hillary, 2004; Naffziger et al., 2003), whereas some literature do not agree with this argument (Schaper, 2002) although it has some potential be a barrier (Tilley, 1999).

Moreover, SME's have less awareness of environmental management (Weerasiri and Zhengang, 2012) as well as on environmental legislations (Stuart, 2000) and waste management technologies (Howe, 1997) which has become a barrier for the application of MAPs. It has been argued that nature of the SMEs is to respond quickly to the critical incidents in SMEs' day-today management but have not given much consideration for the long-term intangible environmental benefits. Such organisational culture with a lack of awareness and a negative attitude towards environmental management (Hillary, 1999), would hinder the application of MAPs for managing ecological issues. Additionally, Stuart (2000) has shown that SMEs perception of the impact of the ecological issues has led them to believe that the legislations may not affect them as the impact is negligible. Consequently, SMEs are more reactive than proactive in managing ecological issues (Weerasiri and Zhengang, 2012).

Moreover, SMEs' management are reluctant to adopt more formal control and communication

structures (Bosworth and Jacobs, 1989) due to resources and skills requirements (Bianchi and Noci, 1998) without much short-term gains for businesses. Hence, due to the lack of studies being carried out in the emerging economies with regards to the application of MAPs to manage ecological issues in the SME context (Herzig et al.2012, Gunaratne & Lee, 2015), this research attempts to fill this gap in the literature.

Theoretical Aspects

Since the organisational theories help to understand a phenomenon and create knowledge (Boer et al., 2015), the diffusion of innovation theory (DoI) (Roger, 2003) can be employed to enhance the analysis of the findings. DoI has been employed in two perspectives (Bjørnenak, 1997), namely the economic perspective, where organisations adopt innovations to enhance performance (Rogers, 1983), and the social organisational process perspective, where ideas are considered to be diffused via complex relationships through which organisations create networks with external stakeholders (Ax and Bjørnenak, 2007; Modell, 2009; Yazdifar et al., 2008). Since DoI captures the transfer of practices amongst stakeholders, diffusion is the communication process, which can occur via various channels over time within a social system (Rogers, 2003). It can also occur from external organisations, such as regulatory bodies (Carbone et al., 2012). Hence, this theory would help us understand how various practices, such as environmental practices, have influenced an organisation's supply chain within an industry (Tate et al., 2012).

DoI has been adopted in many studies to explain the influencing factors (Alcouffe et al., 2008; Wu and Chuang, 2009) and the behaviour of the implementers during the process of adopting a system or an innovation (Frambach, 1993). The factors that have been considered are learning, the supply and demand forces, the corporate and national culture, the social and economic values and the bundling effects of innovations (Ax and Bjørnenak, 2007; Bol and Moers, 2010; Kennedy and Fiss, 2009; Modell, 2009; Van der Stede, 2003). Moreover, according to Hazen et al. (2012), DoI has also been used to explain the post-adoption activities of innovation. There are four key elements of DoI: innovation, time, communication channels and social system.

3. Methodology

Two studies were conducted, Studies 1 and 2. Study 1 explores ecological issues facing small and mid-size enterprises (SMEs) in Sri Lanka from stakeholders' perspectives. Study 2 evaluates SMEs' perception of the issues impeding the evolvement of management accounting practices (MAPs) to environmental management accounting practices within SMEs for managing the environment.

Study 1

Given the nature of Study 1, netnography (Kozinets, 2010) is suitable for implementing naturalistic and bias-free analysis (Costello et al., 2017) because online anonymity allows users to communicate more truthfully than face-to-face interviews (Langer and Beckman, 2005). Data were collected following Kozinets' (2015) recommendations, consistent with the entrée or identification of the online spaces most relevant to the study. Consequently, blogs, YouTube and Facebook (Annex 1) were selected following Kozinets' (2010) criteria, i.e. the topic must be relevant to the study research questions as such that there must be an active and recent flow of communication, there must be communication between participants, the platform must be sizeable in terms of users, the participants must be heterogeneous and the sample must be data-rich. Also, an iterative search provided potentially pertinent sites (Mkono, 2020) from keyword searches, including 'environmental issues', 'ecological', 'small and medium enterprises', 'sustainability', 'management accounting practices', 'emergent economies' and 'Sri Lanka'. Then, the level of interaction with the participants was considered (Kozinets, 2015). It is essential to gather truthful and unbiased responses from participants. Consequently, a non-participative

observation was used (MacFarlane and Samsioe, 2020) since the researchers' interactions with participants could negatively impact the essence of the content being studied (Elliot and Jankel-Elliot, 2003). After considering sites using the above-mentioned search terms, the proposed use of multiple public online sources (Annex 1) enabled contextually rich content (Wu and Peace, 2014) and peer-to-peer interaction (Kozinets, 2015).

Data Analysis

A thematic analysis was used to search for themes occurring across a large set of data offering structured yet adaptable data analysis (Braun and Clarke, 2006) and allowing data patterns to be identified (Giles et al., 2015; Mkono, 2012). NVivo – a widely used computer-aided qualitative data analysis software (Fenton and Procter, 2019) – was used to deeply analyse the collected data in a more systematic way (Gerbic and Stacey, 2005). NVivo allows for flexibility within the coding and analysis using a bottom-up approach (Kozinets, 2015), which moves from specific to general notions (Nelson and Otnes, 2005). This has enabled precise analysis of predefined and emergent themes (Thanh and Kirova, 2018). The data was read several times (Giles et al., 2015), and irrelevant data, such as one-word comments, emojis, non-English comments or comments unrelated to environmental management accounting, were eliminated to ensure precise results (Izogo and Jayawardhena, 2018; Kozinets, 2002). The data was then coded to identify emergent themes following Giles et al. (2015). The data were accessible on publicly available sites where the researchers were not engaged with the users, presenters or the developers of the sites where the posts were voluntarily posted for broader access. Also, all direct quotes were anonymised to maintain confidentiality.

Study 2

The findings from Study 1 were complemented with themes that emerged from Study 2, which employed semi-structured interviews conducted with a sample of ten SMEs' top managers across different industries, e.g. exports and manufacturing, in Sri Lanka. The purpose of Study 2 is to explore SMEs' perception of MAPs on ecological issues and their awareness of the critical issues emerging from Study 1. The purposefully selected sample included business owners, chief financial officers and accountants who have had at least three years of experience in their current position in the SME. A thematic analysis was carried out. The data was recorded, transcribed and coded to allow themes to emerge.

4.. Results and Discussion

This section presents the findings from the data analysis of both netnography and semi-structured interviews using NVivo 12 software. The qualitative data were coded and categorised. This led to the generation of themes (Huberman and Miles, 2002) related to both triggers and barriers for applying MAPs in Sri Lanka to manage ecological issues faced by SMEs. Quotes have been extracted based on factors identified in the literature review and the interviews. This study has uncovered cultural barriers and factors identified in the previous literature. It also delineates those factors to explain how they

intertwine to influence MAPS adoption within SMEs for their sustainability in an emerging economy. The findings (the themes relating to triggers and barriers) according to the four critical elements of diffusion of innovation (DoI) of innovation, time, communication channel and social concerns are presented through the application of MAPs.

- **SMEs' sustainability diffusion through the application of MAPs**

Innovation could be considered a competitive practice that emerges from an idea or a combination of ideas shared via a communication channel. It is then accepted as a new practice by a social system based on the perception of its members (Rogers, 2003). The themes relating to the MAP's application, aligned with the critical elements of DoI, were then presented to explore SMEs' sustainability diffusion and awareness of the management of ecological issues while adopting and maintaining good practices.

- **Awareness of managing ecological issues while maintaining best practice amongst SMEs**

The literature provides evidence regarding the lack of awareness of managing environmental performance in SMEs (IFAC, 2005; Weerasiri and Zhangang, 2012). Previous studies including those by Smith (1997) recognised the importance of raising awareness of ecological issues in the context of an SME. This study found a trigger for achieving environmental sustainability for manufacturing SMEs involved with exports. The owners and management were aware of the environmental requirements and global standards. Overall, it is vital to shift best practice from MAPs towards environmental management accounting practices (EMAPs) in SMEs to mitigate ecological issues. This evolution has been ratified by expert opinion mentioned in the communicated texts. The communicated texts were not edited to preserve their meaning.

''…companies in Sri Lanka also take advantages from EMA practices to identify potential new markets. Sri Lanka is a small country, and they are keen to export, and are looking for international business partners…" (An academic Expert view, University blog)

This progression from MAPs to EMAPs, to improve environmental performance, is considered best practice in accounting development since traditional MAPs face challenges in dealing with ecological issues (Gale, 2006; Jasch, 2006; Ferreira et al., 2010). These findings are consistent with Ferreira et al. (2010), who propose that EMAPs could be used as a tool to manage and report ecological information to stakeholders since traditional MAPs are not proficient in separately capturing the imperceptible ecological cost. These costs have been identified as overheads in fund allocation (Ditz et al., 1995). This means inventory wastage has not been recognised as an ecological cost (Bartolomeo et al., 2000). Accordingly, these Issues with traditional MAPs have resulted in the incorrect recording of actual expenses in a business, especially regarding the environment. The opportunity to minimise such ecological costs has been neglected by many organisations (Chang, 2007) due to reasons such as a lack of awareness on the part of management regarding the benefits of EMAPs (IFAC, 2005), weak environmental regulations, challenges encountered and decreased pressure from stakeholders (Burrit, 2004). Furthermore, SMEs need to identify the importance of EMAPs (Schaltegger and Burritt, 2000) as present-day customers are more vigilant towards the role of corporate social responsibility in solving ecological issues. However, SMEs are negligent concerning environmental aspects because of inadequate familiarity with EMAPs (Ramli and Ismail, 2013; Mat et al., 2018, Msomi et al., 2020). Nartey and Van Der Poll (2021) have argued that regulatory agencies need to ensure that regulations and policies emphasise the benefits of the involvement of SMEs in ecological and social sustainability (Jamil et al., 2015; Nair and Nian, 2017). A lack of research regarding SMEs (Lee, 2009) has led to a gap in the literature about applying EMAPs to overcome ecological issues in a developing or emerging country (Jamil et al., 2014). Overall, the importance of adopting good practices such as EMAPS in SMEs to mitigate the ecological issues has been widely recognised and expert opinion emphasises this further as mentioned in the communicated texts below..

"…not having proper financial management practices, including financial disciplines of business

owners and leaders, there is a higher risk of business failure…" (Consulting Entrepreneur Expert view, Facebook)

''…there was a time we had a better solution as one of the biggest cement manufacturing companies bought our waste (polythene) but they don't do it anymore. So this has caused us extra cost to remove the waste by ourselves. So we need to manage this efficiently. So we have hired an accountant and an assistant. They provide us a P and L on monthly basis. Every month we monitor the breakdown of costs like labour cost, admin cost, etc. So we can compare with our past data too and see which costs have increased… '' (CEO, SME Exporter)

- **Awareness of MAPs within SMEs to Mitigate both Ecological and Social Costs**

This study suggests that SMEs that are exporters are more aware of MAPs and have considered them to be coercive triggers. That is, SMEs need to use MAPs proactively for measuring ecological and social costs. This could facilitate SMEs to accurately generate cost accounting information for internal decision-making. This issue has been emphasised by the respondents, as noted below.

''…we have a budget prepared on monthly basis…so we have a better understanding on how much available for us to spend on social activities such as contributing to local hospital school and our village temple…'' (Accountant, SME Exporter)

''…also we need to know how much additional money we need in an emergency to support our village employees as their moral is a key to our business. Sometimes we have to look after their family member's matters especially their children, as they are mostly coming from poorer backgrounds…'' (CEO, Manufacturing SME)

''…so keeping a budget and rolling P and L has helped us to monitor our cost for waste removal and other additional fees we have to pay to the environmental regulators…'' (CFO, SME Exporter)

''we manage our costing using a small software system…'' (CFO, SME Exporter)

Moreover, some members of the senior management SMEs are aware of the practices relating to costing and their benefit for the organisations.

''…Cost accounting in the sense, actually we do job costing. So we have to find the total cost for us to make one mould. So mostly we do it manually using Excel spreadsheets. So as it's a family business these costing parts actually handled by myself or my father…''(CEO, Manufacturing SME).

Conversely, in Study 1, it is found that unfamiliarity with the terms such as environmental management accounting practices (EMAPs) and the lack of awareness of practices to mitigate ecological issues could be barriers for SMEs in adopting EMAPs. This has been emphasised by an expert, as mentioned below.

''…They do carbon and energy management accounting and measurement, but they don't call it EMA. They simply used 'energy management' or something like that…Organisations might be operating a project for carbon or waste management and have a system, but they don't classify it as EMA due to a lack of awareness and education," (An academic Expert view, University blog)

Moreover, previous literature (*inter alia*, Nagirikandalage and Binsardi, 2017) shows a lack of awareness of the importance of costs, cultural resistance and workloads as the prominent barriers to implementing cost management systems, which are a subset of MAPs. Consequently, ecological costs need to be identified both internally and externally, while social expenditures need to be assessed and measured as social costs. Accordingly, businesses need to precisely identify, measure and allocate these ecological and social costs before proceeding into a single production cost model. Otherwise, it could portray an inaccurate picture about the true production cost of that particular product because the ecological costs—shown as part of overhead—are hidden among the production processes (IFAC 2005; UNDSD 2001; Hill et al., 2006).

- **Barriers hindering the application of MAPS within SMEs due to time taken because of external delays in the process**

Some practical barriers for the application of MAPs were identified specifically to avoid ecological issues due to third party stakeholder inefficiencies. Hence, it is argued that the length of time required for SMEs to adopt relevant MAPs could be influenced by factors beyond the control of SMEs.

" … since we do coconut products, all the wastage we reuse for our different products and minimise the wastage. But we get lots of packaging like plastic and polythene *waste. But these waste are not collected well by the council like they do in the capital city. So we have identified some areas and we take these wastes to these areas and burn them by ourselves…'' (CEO, SME Exporter)*

''…many businesses' in this area are facing this waste removal problem. I visited the provincial council several times and they visited my factories but there is no effective solution was given to us yet. I think the government provincial council also has an issue finding a place to leave these waste as many people protest against waste removals near to their villages…'' (CEO, SME Exporter)

Accordingly, SMEs need to identify different types of decisions to accelerate the process within the social system. That is, facts and figures, such as ecological issues in product pricing, ecological actions that need to be prioritised, information about budgeting and evaluating the performance of ecological activities, are among the invaluable qualitative and quantitative information required for making strategic decisions on business sustainability (Bennett and James, 1997). These valuable features of EMAPs encourage businesses to employ environmental costs and benefits as part of a value-added system while fulfilling stakeholders' expectations to reduce wastage management costs.

Additionally, Schaltegger and Wagner (2006) explained that businesses that apply sustainable MAPs have a higher probability of operating with a balanced performance of 'green' and 'social' qualities whilst attaining greater benefits in long-term economic performance. According to Johnson and Schaltegger (2016), EMAPs have been used as a strategic sustainability management tool in the SME context. Also, it has been evidenced that many SMEs have still not been applying formalised EMAPs in their operations (ECAP, 2011; Hillary, 2004; Gibassier and Alcouffe, 2018; Ghosh et al., 2019) because of a dearth of resources for SMEs, uncertainty regarding the environmental management process and insufficient compensatory mechanisms (Hillary, 2004; Lavia, Lopez and Hiebl, 2015). Moreover, internal barriers (e.g. corporate culture, beliefs, attitudes, norms) and external barriers (e.g. institutions and economics) adversely impact in the application of EMAPs in SMEs. Among these barriers, the internal factors are considered the most dominant reason to hinder the EMAPs of SMEs (Hillary, 2004).

According to Hillary (2004), the application of EMAPs can foster both internal processes (organisational, financial and people) and external performance (commercial, environmental and commitment) because environmental management often causes a reconciliation of economic and

ecological issues by demonstrating how compliance will improve environmental performance. Hence, Ferenhof et al. (2014) argued that the application of EMAPs in SMEs enables creating value added to the business in the short and long-term through improving internal and external operations. Moreover, Zorpas (2010) explained that EMAPs create a robust system to analyse production waste by forming a set of environmental targets that create performance indicators tailored to the nature of the businesses. Consequently, this can help managers make precise decisions on managing their waste, especially for SMEs as indicated by the quote below.

''...So this has caused us extra cost to remove the waste by ourselves. So we need to manage this efficiently. So we have hired an accountant and an assistant. They provide us a P and L on monthly basis. Every month we monitor the breakdown of costs like labour cost, admin cost, etc. So we can compare with our past data too and see which costs have increased... '' (CEO, SME Manufacturing)

- **Barriers to communicating relevant and precise information**

Innovation could be effective with an appropriate channel of communication within the social system. However, some expert opinions on using MAPs to overcome ecological issues are somewhat inconsistent, as shown below.

''...the main issue is they do collect environmental and sustainability data and information, but they do not really integrate this data into their actual core business functions or strategies...'' (An academic Expert view, University blog)

'...we need high quality advisory and mentoring because we don't see that high quality advisory services going into this SME segment...we have big consulting firms, consultants, agencies but most of these SME firms cannot afford them...o most people who advise them have no sufficient capacity and competence to support them'(Expert view, Advisor to the Sri Lanka chamber of Small and Medium Industries, Youtube)

Hence, further investigation is needed to understand the mixed viewpoints amongst SMEs and experts in the area. This could allow stakeholders and SMEs to become more aware of innovative practices and be useful in reducing the negative attitude towards the application of EMAPs.

- **Social system as a boundary for SME sustainability diffusion by the adoption of practices**

The stakeholders within the social system including the innovators (developers) and adopters, such as SMEs, regulatory bodies, governmental organisations, councils, professional bodies and members of the social organisations, could develop the norms and structures (communication channel within the social system) that are interrelated in order to achieve common goals. Previous literature (Perez-Sanchez et al., 2003; Curkovic et al., 2005; Albelda, 2011; Heras-Saizarbitoria and Boiral, 2013; Stubblefield Loucks et al., 2010; Ardente et al., 2006; Salim et al., 2018) shows how the application of MAPs specifically related to environmental management would assist in improving the awareness, expertise, experience, involvement and commitment of employees. Johnstone (2020) highlighted the fact that the possibility of applying such practices could provide a regulatory framework for assessing and exploring environmental management to drive SMEs towards sustainability in terms of both environmental and financial aspects. However, this has been identified as a coercive barrier due to the insufficient guidance provided by the politicalised authorities and regulators.

''...I think this is a problem for the whole country and the politicians are not providing a sustainable solution to this waste removal too...'' (CEO, SME Exporter)

"… policy and regulations is where the government come into play…there are lot of disconnects in the policy framework and there are misfits in certain regulations that hinder SME sector players performing…" (Expert view, Advisor to the Sri Lanka chamber of Small and Medium Industries, Youtube)

- **Other socioeconomic barriers**

A substantial amount of literature published within developed countries regarding the application of MAPs in emerging economies has been considerably neglected (Alawattage et al., 2007; Hopper et al., 2009; Hopper and Bui, 2016; Hopper and Hoque, 2004). However, the holistic view of the application of MAPs in emerging economies cannot be derived from that literature due to inconsistencies in several socioeconomic factors compared to developed countries (e.g.. traditions, cultures and belief systems; political instability and interference; traditional systems that are easy to override and may not be formal; lack of financial capability; lower accounting literacy; less advanced technology; low adoption of information technology; and poor infrastructure facilities due to poverty and economic imperfections) (Nagirikandalage and Binsardi, 2017).

'…the number one barrier for SMEs is the difficulty in accessing finance or getting capital…this has two aspects broadly, one is nonawareness of sufficient sources of finance at an affordable level, secondly, even when they have the sources of finance like the formal banking system there are other barriers why they cannot obtain finding facilities…' (Expert view, Advisor to the Sri Lanka chamber of Small and Medium Industries, Youtube)

',,,technology is another barrier for SMEs in todays context…most of SMEs don't know even to do a facebook campaign…they do not know how to use mobile phones to penetrate the market…there are lot of things SMEs can do with technology like in larger scale they could automate their processes…' (Expert view, Advisor to the Sri Lanka chamber of Small and Medium Industries, Youtube)

Attygalle (2012) explained that the configuration of the economic structure of emerging economies is varied from developed countries in several ways, as those economies are predominantly based on the agricultural sector, and the countries' poverty poses a significant issue. Also, those countries are characterised by less economic growth, lower per capita income, higher unemployment rates, ad hoc changes in industrial policies due to swinging power between political parties and rampant corruption.

Furthermore, Maliah et al.'s (2004) study explained that emerging economies mostly apply traditional MAPs, whereas contemporary MAPs are less in demand because they are expensive and too technologically complicated. Relevant literature (Joshi, 2001; Rao and Ahamed Beg, 2015) has shown that businesses in countries like India have still been widely applying traditional MAPs, particularly when using budgeting and performance-related MAPs. Moreover, Wickramasinghe et al. (2004) mentioned political intervention for MAPs and how the value of these systems could be tarnished by politicians' imprudent decisions.

Additionally, Hoque and Hopper (1994) have shown that political intervention is a barrier to implementing MAPs in emerging economies. Although implementing a new system is not impossible, political, social, economic and cultural factors could be barriers to implementing MAPs. Political inefficiencies related to ecological factors have greatly impacted SMEs' attitudes towards and the capacity to manage ecological issues.

5. Conclusion

This paper explores how MAPs evolve to EMAPs to reinforce the importance of environmental issues and challenges faced by SMEs in the emerging economy of Sri Lanka. Evidence has been collected through netnography and interviews with SMEs in Sri Lanka. The primary data were analysed through the lens of the diffusion of innovation theory, focusing on the key elements such as innovation, time, communication channels and social systems. The findings identified both triggers for and barriers to applying EMAPs in the Sri Lankan context. This study provides insights that can help researchers understand the triggers of and the barriers to the application of EMAPs for achieving accounting sustainability in SMEs. The findings also reveal how ecological issues and social costs could be anchored in accounting systems to enhance the longevity of SMEs. The results indicate that the incorporation of ecological issues into MAPs could increase the internal visibility, identification and management of ecological issues, which may in turn lead to improved financial and economic performance. However, due to varied challenges of environmental and political natures, SMEs in an emerging economy are yet to benefit from these practices. Since there is much discussion about renewable energy in the country, SMEs may be able to overcome the environmental challenges incorporated into EMAPs in the future through innovation. Hence, it is recommended that further research be done to identify the application of MAPs incorporating the aspects of renewable energy in emerging economies for achieving sustainability. This is because it has been recognised that SMEs are at high risk in terms of maintaining their long-term survival within the present turbulent economy. In the meantime, the information derived from both MAPs and EMAPs is invaluable for strategic decision-making processes, thereby enabling SMEs to manage robust environmental performance. Hence, this study will be invaluable for policymakers seeking to identify solutions for environmental challenges faced by SMEs. It will also be useful to academics hoping to investigate further how innovation can assist SMEs to overcome such challenges to enhance their sustainability diffusion.

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Annex1:

1. Youtube

Webinar - Enabling the ecosystem of SMEs in Sri Lanka - Role of professionals - 31- October - 2020
https://www.youtube.com/watch?v=O2LUpCbHdIg

Going Green with Green Keepers
https://www.youtube.com/watch?v=fqPPEoF1Pxc&t=3s

2. Blog

https://blogs.griffith.edu.au/asiainsights/exploring-environmental-management-accounting-and-corporate-sustainability-in-australia-and-sri-lanka/

3. Facebook

https://www.facebook.com/search/top?q=management%20accounting%20sri%20lanka
https://www.scbcorporate.com/working-capital-cash-flow-management/?fbclid=IwAR16YCSC4-YG-KAkGu7ZZV_QUJMbtxkfHKKRyyi99UqmbfjCnVshViuEWe4