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## **Environmental Management Accounting System and Value Creation: An institutional perspective**

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### **Abstract**

The emergence of environmental issues has increased environmental protection awareness among society and pushed organizations to become environmentally responsible. Many companies currently consolidate environmental matters into their corporate strategic plan by adopting a comprehensive Environmental Management Accounting System (EMAS) to create more value. However, a lack of understanding on the institutional pressures persuading EMAS adoption within the organizations has reduced the urgency for the company to adopt the EMAS. This paper aims to explain the management's behavioural issues towards EMAS adoption and how this behavior would lead to value creation.

**Keywords:** Environmental Management Accounting System (EMAS), behavioural barriers, value creation, institutional theory

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### **1.0 Introduction**

Over a long time, environmental issues such as contamination, deforestation, and climate change have recently become a fascination to all nations due to the overconsumption of natural resources. These issues will weaken the value of human life and posture dangers to worldwide sustainability. According to Global Sustainable Development Report 2019, the world will consume 90 billion natural-resource tons per year by 2050 if the economic growth proceeds within the business-as-usual structure (Messerli & Murninnngtyas, 2019). The overconsumption of those limited resources will result in biodiversity loss (Abdul Aziz, Ong, Foong, Senik, & Attan, 2018). According to the United Nations Emissions Gap Report, the biggest emitters of greenhouse gases are organizations that operate in environmentally sensitive industries such as oil and gas extraction, mining and chemical fabricating. In any case, environmentally less sensitive sectors such as the service industry also have been causing environmental problems due to the overconsumption of natural resources (Aziz, Siddiq, & Ishak, 2018). Hence, the sustainable development concept is presented within the commerce world to deal with the unfavorable effect of organization operation on the environment (International Federation of Accountants [IFAC], 2005). In Malaysia, the expeditious industrial development and economic growth have worsened numerous sustainability. Despite the unprecedented development rates, environmental issues are deteriorating as rapidly as their economic growth. Recent calls for sustainability and pressure for companies to behave more sustainably (Razak, Ramli & Rasit, 2020).

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From 2007 ahead, Corporate Social Responsibility Reporting (CSRR) has been made obligatory to all companies listed in Bursa Malaysia to improve companies' social responsibility activities. As a result, organizations are growing to adopt a more comprehensive approach to the environmental management system. Conventional management accounting systems do not provide a specific view of environmental impacts and related costs but instead focus on financial performance (ACCA, 2018). As a result, organizations' environmental costs are not accounted for, and this environmental information is missing from various decision-making techniques. The organization also loss opportunities in decreasing environmental costs triggered by the flawed conventional management accounting system. Hence, EMAS represents a comprehensive management accounting system that helps companies provide internal and external stakeholders (Ariffin, 2016). EMAS adoption is a way to create value for an organization that can increase competitive advantage, enhance its market share, and improves investors' financial returns (Agustia, 2020; Zandi & Lee, 2019).

The adoption level of EMAS is still at the infancy stage, especially in developing nations such as Malaysia (Mat Yusoh & Tuan Mat, 2020). Institutional pressure is the main factor that motivates companies toward more advanced environmental management (Chathurangani & Madhusanka, 2019). Furthermore, there are various barriers to adopting environmental management practices. Prior studies only specified the barriers without further discussing how the behavioural barriers could moderate the effect of institutional pressure on EMAS adoption (Olalekan & Jumoke, 2017). This study has distinguished two behavioural barriers that affect EMAS adoption, namely attitudinal barrier and management barrier. These barriers appear to be interrelated and make the execution of environmental activities challenging to implement.

This research will extend EMAS literature by explaining the concept behind EMAS adoption and its impact on value creation by understanding institutional pressure and behavioural barriers. This paper describes the moderating role of behavioural barriers on the influence of institutional pressures on EMAS adoption. Furthermore, this paper also explains the role of EMAS adoption in mediating the impact of institutional pressures on value creation. It seems that this matter is nonetheless to be empirically explored in the Malaysian context.

## **2.0 Literature Review**

### **2.1 Environmental Management Accounting System (EMAS)**

EMAS is an extension of the conventional management accounting system. The conventional management accounting system often does not provide accurate information environment-related cost management (Doorasamy & Garbharran, 2015). As more companies become interested in using environmental management accounting systems to manage their environmental performance, EMAS has gained recognition from countries worldwide (Phan, Baird & Su, 2017). Through EMAS adoption, companies can measure financial and non-financial environmental information beyond the ordinary perspective, which tends to lump environmental costs into the overhead costs (IFAC, 2005). Le, Nguyen, and Phan (2019) defined EMAS as a system that enables an organization to trace, collect, and analyze physical and monetary environmental information to support decision-making and performance management. EMAS is defined as the analysis of monetary (financial) and physical (non-financial) environment-related costs to improve organizational performances (Chaudhry, Asad, Amir & Hussian, 2020) and also can be used for external reporting (Doorasamy & Garbharran, 2015).

### **2.2 EMAS Adoption in Malaysia**

As part of a developing country, Malaysian companies are no exception to the concern about environmental issues. Through EMAS adoption, both financial and non-financial environmental-related information are identified, collected, and used for the strategic business plan within the organization. However, prior research also found that the adoption of both Physical Environmental Management Accounting (PEMA) and Monetary Environmental Management Accounting (MEMA) was below the midpoint level (Ahmad et al., 2020; Mat Yusoh & Tuan Mat, 2020; Phan et al., 2017). Furthermore, environmental accounting practice in the service industry is weaker when compared to other sectors, and that most companies still insufficiently use environmental management to reduce their environmental footprint (Jankovic & Krivacic, 2014). Regrettably, environmental management practices undertaken by the public listed companies in Malaysia were said to be still in infancy and lagging behind environmentally conscious counterparts (Ariffin, 2020). Research by Jamil, Mohamed, Muhammad, and Ali (2015) focuses on small-medium manufacturing companies shows that EMAS adoption in Malaysia is still low. This finding is constant, with other studies reporting that EMAS implementation is still low (Ong, Noordin, Kassim & Jaidi, 2018). In addition, the organization that disclosed an environmental perspective in their annual report was low compared with the country's number (Mohammad & Wasiuzzaman, 2021).

### **2.3 Value Creation**

Value creation from EMAS adoption has become a more significant concern due to market pressure, brand destruction, and the competitive market. There are some approaches for a business to create value which is through the adoption of EMAS. Pratiwi, Meutia, and Syamsurijal (2020) revealed that EMAS adoption has a significant positive relationship with corporate sustainability. Value creation within the current study is considered value-added by enhancing financial performance, market performance, and environmental performance. EMAS has been implemented in reaction to a conventional management accounting system deficiency that cannot report separately on or track environmental costs (Mokhtar, Zulkifli & Jusoh, 2016).

As a result, many high environmental costs are invisible and not acknowledged in company decision-making. A study done by Passetti, Cinquini, and Tenucci (2018) posited that when EMAS is implemented, the sustainability aspects were more incorporated within companies. According to Jankovic and Krivacic (2014), corporations have to implement EMAS to provide environmental disclosure. This

reporting regarding environmental impacts becomes a sign for businesses to show their environmental accountability.

Furthermore, EMAS adoption enabled organizations to achieve a competitive advantage and improve their organizational performances (Rahman, Meero & Mansur, 2020; Zandi & Lee, 2019). Thus, this paper argues that EMAS adoption benefits an organization in the financial aspects and enhances reputation with the general public.

## **2.4 Institutional Theory**

The institutional theory helps address the role of institutional actors on the behavior of companies and their employees towards environmental aspects. These behaviours include the business attitude towards energy consumption, ecological practices, and environmental management practices. The institutional theory explores how institutional forces form business structure and actions (Razak, Ramli & Rasit, 2020). There are three elements of institutional theory, namely coercive isomorphism, normative processes, and mimetic pressures (Phan & Baird, 2015). It is vital to note that all three mechanisms are not always empirically distinct from each other. Coercive pressure arises from government legislation and procedures due to formal and informal enforcement from the regulatory bodies. While when company goals are uncertain, they try to mimic other companies' reactions to solve similar problems (Jamil et al., 2015). Normative pressures stem from professionalism, such as education and professional networking (Iredele, Tankiso, and Adelowotan, 2019).

Stakeholders consistently pressure more ethical and responsible business conduct and demand corporations to develop an actionable plan for a greener and healthier environment (Nyide & Lekhanya, 2016). The pressure can arise from two types: formally by the legislative through written laws and regulations, and informally, such as the invention of norms, habits, and customs. Furthermore, Latif et al. (2020) found that environmental cost management's perception is highly influenced by external parties such as government agencies, financial institutions, and professional bodies. The institutional theory has been widely used as a rationale underlying EMAS adoption (Chathurangani & Madhusanka, 2019). However, empirical research also has advocated several barriers to the adoption of environmental practices in the organization.

## **2.5 Behavioural Barriers**

### **2.5.1 Attitudinal Barrier**

Attitudinal barrier refers to a low urgency of an accounting system for environmental costs and employee resistance to change (Karimi, Dastgir & Saleh, 2017; Jamil et al., 2015). Lack of awareness and attitudes of employees that do not prioritize accounting for environmental costs seems to be a substantial barrier to EMAS adoption (Mohamed & Jamil, 2018). Azizi, Fahim, and Shahrokhi (2013) found that organizations accumulate environmental costs such as electricity and water in an overhead account. Furthermore, the top management does not have any motivation to manage the environmental cost (ACCA, 2018). Therefore, resistance from the employees that have been passionate about their old approach of undertaking things could hinder EMAS adoption (Mat Yusoh & Tuan Mat, 2020; Qian, Burrit, & Chen, 2015). The attitudinal barrier also arises when employees have a closed mind and lack readiness to learn a new system. However, Olalekan and Jumoke (2017) argued that attitudinal barrier does not significantly influence EMAS adoption among South African companies.

### **2.5.2 Management Barrier**

The management barrier comes mainly from the lack of encouragement from management, lack of environmental accountability, and no proper environmental strategic plan that has been incorporated in business decision-making (Hossain, 2019; Jamil et al., 2015). In addition, the top management was also hesitant to manage environmental costs and do not want accountability for consuming natural resources when there is no incentive to address environmental matters. Olalekan and Jumoke (2017) found this finding consistent with research that management barriers such as failure of the management in providing encouragement and leadership support as the factor hindering Nigerian companies from adopting EMAS. Furthermore, managers are often found to have little awareness of management practices related to the environment (Nyide & Lekhanya, 2016). Jalil, Abar, and Dadashian (2016) found that the obstacles to EMAS adoption are mainly due to the unwillingness of the companies to reveal their environmental information. Thus, a narrow-minded manager will tend to defer investments in EMAS adoption as no management commitment for environmental matters is incorporated in company environmental policy (Jankovic & Krivacic, 2014).

## **3.0 Conceptual Model**

A conceptual model to explain the roles of institutional behavior in EMAS adoption and its influence on value creation is developed based on the literature reviews and institutional theory.

### **3.1 Level of EMAS Adoption**

Prior research found that the adoption level of EMAS in Malaysia is still at the infancy stage (Ahmad et al., 2020; Mat Yusoh & Tuan Mat, 2020). Research by Jamil et al. (2015) that focuses on small-medium manufacturing companies shows that EMAS adoption in Malaysia is still low due to a lack of institutional pressures. This low adoption is often since the companies' discernment that sustainability issues are not vital has contributed to the moderate diffusion of EMAS adoption in Malaysia (Ariffin, 2016). There is empirical evidence that points to the fact that there are various barriers to adopting environmental management practice, such as resistance to changes among top management, lack of professional environmental information, and management failure in providing encouragement and

leadership support (Mohamed & Jamil, 2018). In addition, Malaysian companies have a low implementation level of EMAS due to lack of government enforcement, greenness at the company level, and a state of mind towards change.

### **3.2 Institutional Pressure and EMAS Adoption**

This institutional pressure is extensively acknowledged as an established and dominant rationalization for businesses' practices (Ahmad et al., 2020; Latif et al., 2020). Chaturangani and Madhusanka (2019) revealed statistically significant positive relationships between the institutional pressures with EMAS adoption. Organizations will usually embrace a particular system when there are forces from stakeholders. In environmental practices, coercive pressure is frequently related to government agencies, professional bodies, and shareholders (Jamil et al., 2015). A few researchers have established that coercive pressure affects corporate environmental behavior (Razak, Ramli & Rasit, 2020). Normative pressure can be derived through professionalization and also comprise management's competency and strategic coordination. Iredele, Tankiso, and Adelowotan (2019) found that the normative pressure is the most forceful in influencing EMAS adoption among companies in South Africa. Management accounting is well acknowledged for its procedural exercise that an organization usually adopts proper standards when dealing with problems and challenges. Mimetic pressure is derived from ambiguity which may arise from certain circumstances when companies try to mimic other companies' practices. Companies will tend to adopt EMAS if their competitors use EMAS to manage environmental costs (Jamil et al., 2015).

### **3.3 Behavioural Barriers and EMAS Adoption**

This research is conducted to fill the gap that most of the studies only stated the barriers without further arguing how these behavioural barriers could moderate the effect of institutional pressure on EMAS adoption. Tran, Hoang, and Nguyen (2020) found that managerial barriers are the primary constraint in EMAS development in the Vietnamese automobile enterprise. Top management's resistance to change is a crucial obstacle to adopting environmental initiatives (Mohamed & Jamil, 2018; Jankovic & Krivacic, 2014). Organizations accumulate environmental costs such as electricity and water in an overhead account (Hossain, 2019; Doorasamy, 2016). The top management also does not motivate to manage the environmental cost (ACCA, 2018). The top management was also hesitant to manage environmental costs and do not want responsible for the consumption of natural resources when there is no incentive assigned to address environmental matters (Gunarathne & Alahakoon, 2016). Ratanasongtham, Phornlaphatrachakorn, and Janjarasjit (2017) used business ethics of management as a moderating variable on the relationships of stakeholder force dynamism and EMAS adoption. Prior research also found that these behavioural barriers, such as lack of time and commitment among top management and owner-manager characteristics, will moderate the implementation of EMAS. Olalekan and Jumoke (2017) found this finding consistent with research that management barriers such as failure of the management in providing encouragement and leadership support as the factor hindering Nigerian companies from adopting EMAS. Furthermore, managers are often found to have little awareness of management practices related to environmental and social sustainability (Jalil, Abar & Dadashian, 2016).

### **3.4 EMAS Adoption and Value Creation**

A study done by Larojan and Thevaruban (2014) found that EMAS application correlates positively with the financial performance of the listed manufacturing companies in Sri Lanka. Prior researchers found that implementing environmental practices positively improves financial performance (Pratiwi, Meutia & Syamsurijal, 2020; Ong, Teh, Ng & Soh, 2016). Firms certainly spend much money when adopting EMAS in their organizations. However, most companies that implement EMAS can gain a cost-saving advantage due to enhanced process efficiency, reduced usage of raw materials, and wastage disposal. Le, Nguyen, and Phan (2019) also found that EMAS adoption positively impacts financial efficiency. This innovative solution was able to reduce environmental pollution and indirectly can promote companies' profitability.

EMAS adoption would help organizations to improve their competitiveness (Rahman, Meero & Mansur, 2020). Organizations could achieve a competitive advantage over their competitors since companies could realize significant cost savings, leading to a substantial cost advantage. In addition, the companies that implemented environmentally friendly practices will improve corporate reputation that can help companies expand their market share. This practice is in line with the study by Ramli and Ismail (2013), who also found that EMAS adoption had a significant positive relationship with a competitive advantage. Rasit, Hamidon, Tarmuji, Hamid, and Rashid (2020) also found that EMAS practices provide firms with useful information, leading to better development or innovation to gain a competitive advantage. Companies that disclose environmental information in annual reports can generate more significant opportunities to improve their market performance (Younis, Sundarakani & Vel, 2016).

Rasit et al. (2020) found that EMAS implementation would enhance environmental performance among manufacturing companies. There is a significant positive relationship between EMAS adoption and value creation regarding reducing harmful environmental impact and effectiveness in consuming natural resources. As Mokhtar, Zulkifli, and Jusoh (2016) proposed, companies' high commitment to being environmentally accountable is shown by adopting EMAS and transparency in sustainability reporting. Furthermore, Christine, Yadiati, Afiah, and Fitrijanti (2019) found that environmental performance is positively and significantly impacted by EMAS adoption. Phan et al. (2017) also revealed that EMAS implementation has a significant impact on a company's environmental performance. A study was done by Amir, Rehman, and Khan (2020) also found that EMAS adoption significantly mediates the relationship between top management commitment and environmental performance in Pakistan. Runlei, Jaidi, and Fatah (2020) also found that top management's commitment positively affects EMAS adoption and improvement in corporate sustainability performance among Malaysian manufacturing companies. Through EMAS adoption, a more accurate evaluation of the effectiveness of proposes or implemented environmental-related actions can be obtained (Zandi & Lee, 2019).

### 3.6 Conceptual Model of Institutional Value Creation

Adopting EMAS will contribute to value creation if the company can create additional performance in the financial and market and, most importantly, improve environmental performance. However, EMAS can be successfully adopted from an institutional theory perspective when institutional pressures (coercive, normative, and mimetic). However, resistance to change will become a behavioural barrier (attitudinal and management barriers) in the successful adoption of EMAS, thus hindering value creation. This paper explains the moderating effects of behavioural barriers on the influence of institutional pressures on EMAS adoption. Furthermore, this paper also describes EMAS adoption's role in mediating the impact of institutional pressures on value creation. Therefore, the following conceptual model is proposed.

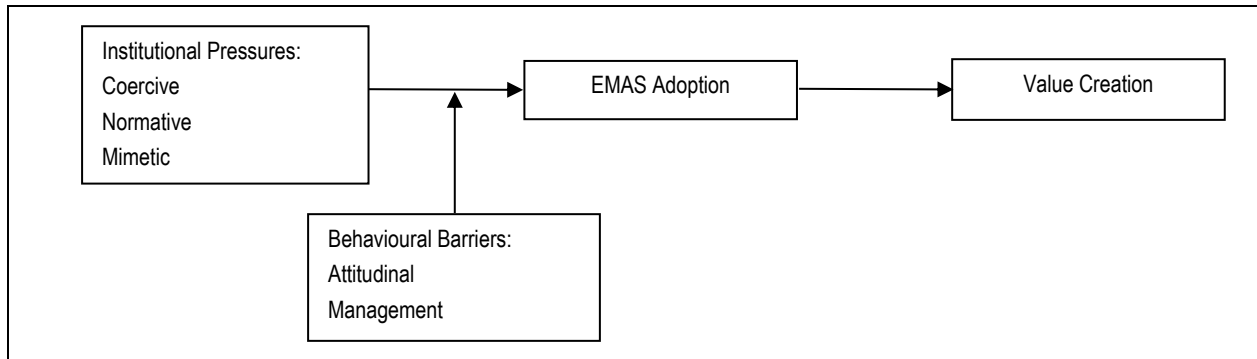


Figure 1: Conceptual Model of Institutional Value Creation

### 4.0 Methodology

A quantitative method was suggested for future research because the data is statistically valid and can be generalized to the entire user population. Furthermore, Malaysian Public Listed Companies were selected because they have a crucial part in safeguarding the environment because they commonly extensively consume large amounts of energy, water, and non-durable products. Meanwhile, respondents will be selected through a cluster and simple random sampling methods to ensure that the target samples are included in the study. The data will be analyzed using the Statistical Package for the Social Sciences (SPSS) Version 27. Specifically, frequency distribution was used to summarize the respondents' profiles. Finally, hypothesis testing could be conducted using Structural Equation Modelling (SEM) approach.

### 5.0 Conclusion

The Sustainable Development Goals (SDGs) were recognized by all United Nations Member States as a worldwide demand to reduce poverty and protect the earth. Besides that, development needs a balance between social, economic, and environmental sustainability. In Malaysia, the expeditious industrial development and economic growth have worsened numerous sustainability issues such as deforestation, climate change, and global warming. One of the 11th Malaysian plans (11MP) aims to take imperative action to mitigate climate change and its effect on the environment (SDG13). The institutional approach addresses the role of institutional actors on the behavior of companies and their employees towards environmental aspects. Stakeholders are consistently pressuring for more ethical and responsible business conduct. The institutional theory highlights various institutional pressures with EMAS adoption, including coercive, normative, and mimetic. Other than these pressures, this paper also highlighted two behavioural barriers: attitudinal and management barriers to adopting environmental practices in the organization. EMAS has pulled in growing consideration and been attracted as a support instrument to generate value creation through improvement of financial performance, market performance, and environmental performance but there shows up to be a lack of research that focuses on developing countries. This study has two limitations that need to be addressed in future research. First, this research only uses a survey, and second, the survey respondent's population and sample are targeted in the Malaysian public listed companies. Appropriately, this paper suggests future research incorporate behavioural considerations when extending the research in companies operate in environmentally sensitive and environmentally less sensitive industries to develop more understanding of environmental management systems. Other than that, comparative studies between industries, countries, or regions will provide further insight into EMAS adoption. This study highlights the imperative role of various authorities in championing environmental sustainability. The Inland Revenue Board of Malaysia could introduce a tax incentive to stir up interest among public listed companies to adopt EMAS. In conclusion, it is worthy to note that every organization's environmental management issues should be embedded as a primary value.

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## Paper Contribution to Related Field of Study

This study has contributed knowledge in environmental management accounting. This study would be able to motivate organizations to incorporate environmental agenda into their corporate strategy. This study is also relevant to policy-makers who design support mechanisms to promote environmental protection and encourage stringent government policy enforcement to enhance Malaysia's environmental quality.

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