

# Relationship Between Institutional Pressures and Environmental Management Accounting Adoption With Special Reference to Small and Medium Manufacturing Entities in Anuradhapura District

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*Abstract - Environment is a vital part of an organization to being success, also having an appropriate environmental management system is leading to record environmental related activities. The study examined the relationship between institutional pressures and environmental management accounting (EMA) adoption level by applying new institutional sociology perspective. 100 small and medium manufacturing entities which are registered in Anuradhapura were selected based on convenient sampling method. Data were collected from accountants or/and proprietor of the selected entities using a structured questionnaire. Reliability analysis applied to test the reliability of the questionnaire; descriptive analysis and inferential analysis were applied to analyze the data. Hypotheses were tested by using multiple regression analysis. As per objective of (1) identifying the relationship between institutional pressures and EMA adoption, the results revealed that coercive isomorphism, normative pressures and mimetic processes are significant and moderate positively influence for the adoption of EMA. Addition to that the study (2) investigates the impact of institutional influences on EMA adoption; the findings exposed that coercive isomorphism (responses to political and legitimacy influences) plays a vital role in pressuring EMA for adoption and final objective was to (3) identify the most forceful factor for the EMA adoption; the findings revealed that coercive isomorphism (political/ legitimacy influences) is important in managing environmental issues in SMEs'. Moreover, the findings support that SME manufacturing firms in Anuradhapura district still do not practice EMA practices with their entities. Therefore, this study recommends that the political and legitimacy influences should enhance to adopt and improve environmental management accounting practices in Anuradhapura district Manufacturing SMEs. Apart from that, the study has made attention on understanding the application of new institutional sociology perspective, also provides useful contribution to the present knowledge by exploring more explanations for environmental*

*management accounting adoption in an unexplored context in Anuradhapura district as well as in Sri Lanka.*

*Indexed Terms: Environmental management accounting, Institutional Theory, small and medium manufacturing entities, new sociology perspective*

## I. INTRODUCTION

In briefly the environment means all surrounding living organisms including human beings, living plants, animals etc. As business environment is significantly important for an organization hence natural environment also provide a significant contribution for each and every part of the society. Because of increasing population and the scarcity of resources led business organizations to think twice when considering an action into practice. It leads them to create more efficient and effective strategies to obtain economic advantages. As a result of it Environmental management accounting (EMA) has been originated to reduce environmental cost. EMA is regarded as an extension of conventional management accounting which considers the way of reporting and communicating the use of monetary and physical (or financial and non-financial) environment related information to improve organizational financial and environmental performance. EMA is “the management of environmental and economic performance through the development and implementation of appropriate EA practices (IFAC, 2005).

From half decade onwards, Sri Lankan citizens tend to purchase eco-friendly products or purchase products from the business organizations which operate

environmentally friendly. Sri Lanka is situated in World's 35 biodiversity hotspots with many threatened and endangered species in existence (Conservation International (CI); Biodiversity Hotspots, 2005). As an example, Salawa army camp explosion, Aranayake and Samasara landslides, Meethotamulla Garbage Mountain collapse, droughts in North and North Central provinces etc. These incidents occurred because of the behavior of the human beings as well as the positioning of the country. According to that having a proper environmental management accounting practice is essential for organizations in Sri Lanka. Nevertheless in Sri Lankan context there is no comprehensive and systematic adoption of EMA (Gunarathne and Alahakoon, 2016). The reasons behind this is low environmental awareness among management and society, lack of effective and systematic role of professional bodies, lack of stakeholders' pressure to adopt EMA practices and weak environmental legislation and regulations (Burrit, 2004). These weaknesses are more obvious within small and medium scale entities (Mitchell and Reid, 2000). Manufacturing industry was contributed 15.4% to the Gross Domestic Products (GDP) in 2016 (Central Bank Report, 2016) and it is the second largest contribution to the GDP. Therefore, the manufacturing companies in Sri Lanka are closely and directly transacting with the environment. Apart from that there are more than 60,000 SMEs in Sri Lanka and their contribution to the country's economy is significant.

Although EMA is a vital tool in strategic management accounting which is used to improve firm's environmental performance (Gray et al., 1993; Schaltegger and Burritt, 2000), the green accounting practice among SMEs has not received much attention from researchers (Ki-Hoon Lee, 2009). Therefore, there is a significant gap in investigating the impact of institutional pressures on EMA adoption in SMEs.

## II. LITERATURE REVIEW

### 2.1 Environmental Management Accounting (EMA)

According to International Federation of Accountants-IFAC (2005) and Burritt et al. (2002), there is no universal accepted definition about environmental management accounting. Therefore different persons

defined it in many ways. Bartolomeo et al. (2000) expressed that generating and analyzing both financial and non-financial information for supporting internal environmental management processes and it considers as a management accounting tool which is used to make internal decisions. Further EMA offers potential benefits to industry, as the capability track, managing the flows, use of materials and energy with greater accuracy. The managers can make accurate decisions for business organizations to enhance their environmental related activities through environmental management accounting (Media, 2006).

Jamil et al. (2015) studied about environmental management practice in small and medium manufacturing firms in Malaysia by investigating about the factors and barriers which influence the practice of EMA. Findings revealed that both MEMA and PEMA show low EMA practice in manufacturing SMEs. The insufficient environmental knowledge and skills restrict the integration of environmental issues into the accounting system and practice. Finally it concluded that absence of a guide to EMA is also another barrier to the integration of environmental issues into the existing accounting system and practices.

According to Gunarathne and Alahakoon (2016) provided a snapshot regarding EMA practices and their diffusion with the view of author's experience with several industries. It studied about use of EMA tools and techniques in Sri Lankan organizations and how it diffused through adopters and propagators. The authors concluded that there is no comprehensive and systematic adoption of EMA in Sri Lanka.

### 2.2 Institutional Theory

A theory is beneficial by addressing the role of institutions on the behavior of the company and their employees. In order to that Jalaludin et al. (2011) stated that the institutional theory is explored the way of an organizational structure and actions shaped by institutional forces such as government, professionals and society that surround organizations. Institutional theory stands in three ways.

1. Old institutional economics;
2. New institutional economics; and

3. New institutional sociology.

2.2.1 New Institutional Sociology

The theory understands the practice of accounting based on a broad variety of areas including cognitive science, cultural studies, psychology and anthropology (Moll et al., 2006). It takes the view that the adoption of a particular accounting system is largely driven by the need of the organization to conform to external pressures as opposed to the desire for increased internal efficiency (Covaleski and Dirsmith, 1988; Moll et al., 2006). Scott (1995) stated institutions as regulative, normative and cognitive structures and activities that provide stability and meaning for social behavior. According to DiMaggio and Powell (1983) there is an important element in this theory that is isomorphic concept.

2.2.2 Isomorphic Concept

Mayer and Rowan (1977); DiMaggio and Powell (1983) expressed isomorphic concept as the structure of the organizational phenomena in their environments and gradually become homogenized with them. According to Meyer and Rowan (1977) organizations will be able to demonstrate that they are not only legitimate but stable by social definition. Therefore, this will encourage greater commitment from internal participants and external constituents. This point reflects the significance of the isomorphic process in promoting an organization's success and survival. Coercive pressures, mimetic pressures and normative pressures are the three mechanisms that caused for changing institutional isomorphic (Nyide & Lekhanya, 2017).

2.2.2.1 Coercive Pressures

According to DiMaggio and Powell (1983), coercive pressures are explained as regulatory compliance to existing regulation. In other words it can occur in response to political influence or legitimacy problems.

Hussain and Gunasekaran (2002) stated that coercive pressures reflect the enforcing and regulative aspects of certain institutions and the institutional features of environments are receiving increasing attention as important determinants of the structure and functioning of organization. Findings revealed that

central bank and socio-economic and political institutional dimensions found to be the most influential factors.

According to Dalaludin et al. (2011) highlighted that accountants were pressured by their customers, shareholders, head office and government in terms of environmental performance. This pressure will then influence company policy and subsequently, affect accountants' management accounting practice, including EMA adoption. As described above, the author found that according to shareholders pressure a Japanese holding company has its own company policy regarding environmental related matters.

Jamil et al. (2015) identified that coercive factors significantly influence to the EMA practice. Pollution incidents law and government pollutions standards were highly influenced to the EMA practice in Malaysia SME manufacturing organizations. According to these findings of previous articles the hypothesis is built as follows:

$H_{a1}$  = There is a positive relationship between coercive isomorphism and EMA adoption level.

2.2.2.2 Normative Pressures

According to DiMaggio and Powell (1983), normative pressures arising from professionalism has emphasized the importance of voluntary adoption to mitigate coercive pressures with consisting two sources of professionalism: Education; and Professional networking.

According to Hussain and Gunasekaran (2002) management's competence, management's strategic orientation and top management and corporate culture were applied as dimensions to measure normative pressures in non-financial performance measurements. Findings provided management's competence and management's strategic orientation were affected to the Finnish banks/ financial institutions.

Qian et al. (2015) discussed about normative barriers that related to EMA development in China by applying observation and interviews in three large manufacturing companies. Findings indicated that

normative pressure was minimal and it largely constrained by a several number of institutional barriers.

According to Jamil et al. (2015) applied motivation from staff training and membership of an accounting body as dimensions in normative pressures. The author concluded that there was no significant influence EMA by normative pressures to small and medium manufacturing firms in Malaysia.

Jalaludin et al. (2011) found normative pressure significantly affects to the EMA adoption level. The questionnaire survey found a significant relation between normative pressure and EMA adoption level; while the post-survey interviews revealed the opposite by indicating the respondents do not face any normative pressure concerning environmental matters in their accounting practices. The respondent accountants revealed that their work is highly structured, and it dictated by their education background and by their training that they have received.

According to Hussain and Hoque (2002) explained that management lack of knowledge of modern performance measurement systems like balance scorecard approach prevented them from measuring both financial and non-financial performance at the same time, with equal importance. The research findings provided that top management's attitude also influenced for the non-financial performance measurement practices.

Setthasakko (2010) found that the success of implementing corporate environmental management depends on the ability to manage humans. Thai employees tend to accept a hierarchical order and recognize top management roles in making decisions and solving problems. According to these findings of previous articles the hypothesis is built as follows:

H<sub>a2</sub>= There is a positive relationship between normative pressures and EMA adoption level.

### 2.2.2.3 Mimetic Pressures

DiMaggio and Powell (1983) expressed that Mimetic pressures are occurred because of responding to proven techniques or practices when faced with

ambiguous and uncertain situations. On the other hand, mimetic processes are result of standard response to uncertainty and these elements cause change in organization. According to Zucker (1987) stated when organizations respond to external institutional pressure, they protect their technical activities through decoupling elements of structure from other activities and from each other, thus reducing their efficiency.

According to Hussain and Gunasekaran (2002) applied integration of costing, performance measurement system with strategy and copying best practice from other organizations as dimensions to measure mimetic pressures how influence to the non-financial performance measurement in Finnish bank and financial institutions. According to findings of four banks and financial institutions, it provided those two dimensions were directly influenced to non-financial performance measurement (NFPM) in bank and financial institutions (BFI). It explained the lack of integration issues creates difficulty in achieving the target to make customer satisfied. The links between the strategies of cost, management accounting system and performance measurement can fulfill the objective to measure not only non-financial performance but also financial performance, which significantly lessens the tendency of copying best practice management accounting system from other organizations (Hussain and Hoque, 2002).

Jalaludin et al. (2011); Jamil et al. (2015) argued that there was an insignificant relationship between mimetic processes and EMA adoption as per questionnaire survey and post survey interviews. It expressed that the non-existence of uncertainty in terms of accounting practice related to environmental issues because the availability of company policy as well as advice from consultants hired to provide guidance on environmental related issues. Therefore, this will lead to reduce the need for copying management accounting practice from other organizations. According to these findings of previous articles the hypothesis is built as follows:

H<sub>a3</sub>= There is a positive relationship between mimetic processes and EMA adoption level

Larojan et al. (2014) stated that in the context of Sri

Lankan organizational view, research on EMA is still at its initial stage and Gunarathne and Alahakoon (2016) stated that the authors do not find a comprehensive and systematic adoption in Sri Lanka. It revealed that in Sri Lankan context EMA is still a developing topic. Further, the influence of factors arising from the manufacturing environment on EMA adoption has not yet been examined within the context of Sri Lanka. Therefore this study is reviewing how new sociology perspective institutional forces can influence to adopt EMA in SMEs' manufacturing companies by identifying relationship between EMA adoption level and institutional pressures.

### III. METHODOLOGY

The researches employ a direct handover method to distribute questionnaires with the intention to enhance respond rate. According to the reports of Divisional Secretariat office (2017) in Anuradhapura district, there are 25,296 of registered SME's in Anuradhapura district. 100 small and medium manufacturing entities were selected based on convenient sampling method. Structured questionnaire (Jalaludin et al., 2011) was appointed to collect data from Accountant or Proprietors of the sample companies as respondents. This study employs descriptive analysis and inferential analysis to analyze the data and hypotheses test by using multiple regression analysis.

### IV. DATA ANALYSIS

#### 4.1 Respondent's profile

A person in charge for financial measurement of a company's activities is essential in getting clear evidence regarding EMA adoption (Burritt et al., 2002). Most of accountant or proprietors are at the age of 31 to 40 years (31%) of sampling entities. It discovers that most of respondents are at their middle age and they have capability to face for the environmental matters with their experience. Table 1 summarizes selected characteristics of the respondents. About 42 per cent of the respondents of highest amount had been employed with their present employers for more than three years and most of them have at least completed their Advanced levels. It can present as 62% of total respondents. This suggests that the respondents are sufficiently knowledgeable regarding the entities' practices.

Table 1 Profile of Respondents

Description	Frequency	%
<i>Gender</i>		
Female	57	57%
Male	43	43%
Total	100	100%
<i>Age</i>		
Bellow 20 years	12	12%
21-30 years	28	28%
31-40 years	31	31%
Above 40 years	29	29%
Total	100	100%
<i>Education Level</i>		
Grade 5-10	09	9%
GCE O/L	29	29%
GCE A/L	37	37%
Diploma	17	17%
Degree	08	8%
Total	100	100%
<i>Work Experience</i>		
Less than 6 months	09	9%
Less than 1 year	22	22%
2-3 years	27	27%
More than 3 years	42	42%
Total	100	100%

Source: Survey Data (2017)

Table 2 expressed the company profile of SME's manufacturing entities.

Table 2 Profile of Sample Companies

	Frequency	Percentage
<i>Sector of operation</i>		
Chemical and wood	06	06%
Plastic, rubber and metal	16	16%
Building materials	17	17%
Food and tobacco	37	37%
Others	24	24%
Total	100	100%
<i>Number of employees</i>		
Less than 5	90	90%
6-10	10	10%
11-15	-	-
More than 15	-	-
Total	100	100%

Source: Survey Data (2017)

Descriptive Analysis

Table 3 Descriptive Statistical Analysis for Variables

	Mean	Std. Deviation
Coercive isomorphism	2.8725	.38573
Mimetic processes	2.3425	.14501
Normative pressures	2.7950	.33405
EMA Adoption Level	2.4054	.78514
Valid N (100)		

Source: Survey Data (2017)

In Table 4, coercive isomorphism pressure denotes the highest mean (2.8725), followed by normative pressure (2.7950) and mimetic processors (2.3425). A similar study by Husain and Gunasekaran (2002); Jamil et al. (2015); Jalaludin et al. (2011) found that coercive isomorphism pressure is the most influential factor, followed by normative and mimetic pressure. And also the mean score of EMA adoption level express as 2.4054 which denotes that most of respondents think that there is less environmental management practice among SME's manufacturing entities in Anuradhapura district.

Correlation Analysis

The relationship among the variables has been tested through Pearson correlation analysis. As per table 4, it describes the person correlation value of EMA adoption level with institutional pressures. According to that there is a significant and moderate positive relationship with EMA adoption level and institutional pressures (coercive isomorphism, normative pressures and mimetic processes). Coercive isomorphism (0.487) and normative pressures (0.496) are significant at 0.01 level and mimetic process (0.212) is significant at 0.05 level. The correlation matrix between independent variables also confirms that there was no violation of multi-colinearity, since there was no correlation above 0.7 among independent variables

Table 4 Pearson Correlations

		Coercive	Mimetic	Normative	EMA
		e	c	ve	A
Coercive isomorphism	Pearson Correlation	1			
	Sig. (1-tailed)				
Mimetic processes	Pearson Correlation	.082	1		
	Sig. (1-tailed)	.208			
Normative pressures	Pearson Correlation	.105	.011	1	
	Sig. (1-tailed)	.149	.458		
EMA Adoption level	Pearson Correlation	.487**	.212*	.496**	1
	Sig. (1-tailed)	.000	.017	.000	
N		100	100	100	100

\*\* . Correlation is significant at the 0.01 level (1-tailed).

\* . Correlation is significant at the 0.05 level (1-tailed).

Source: Survey Analysis (2017)

Regression Analysis

Table 5 Regression Analysis of Coercive, Normative and Mimetic Pressure and EMA adoption level

Model	Standardized Coefficients Beta	t	Sig.	
1	(Constant)	-1.699	.098	
	Coercive isomorphism	.437	3.543	.001
	Normative pressures	.404	3.284	.694
	Mimetic processes	.216	1.759	.457

$P < 0.01$ ,  $F = 27.994$ ,  $R^2 = 0.467$

Source: Survey Analysis (2017)

The effect of coercive, normative and mimetic pressure on EMA adoption level has been examined through linear regression analysis. The results of the

regression equation in Table 5 shows that the regression model is significant ( $p < 0.01$  and  $F = 27.994$ ). Also  $R^2$  value is 0.467 which means 46.7% of EMA adoption level can be described by coercive isomorphism, mimetic processes and normative pressures. Apart from that, normative pressures and mimetic processes do not contribute significantly to EMA adoption among SME's manufacturing entities in Sri Lanka, although coercive isomorphism provides a significant contribution for the adoption of EMA. These findings supported by Jamil et al. (2015) in SME in Malaysian context

#### V. CONCLUSION

The paper presents the relationship between institutional pressures with EMA adoption. Along with that the previous section presented that coercive isomorphism, normative pressures and mimetic processes have statistically significant and moderate positive relationship with EMA adoption with special reference to manufacturing SME's in Anuradhapura District in Sri Lanka. As per the second objective of the research, it revealed that coercive isomorphism influence for the EMA adoption. It denotes political and legitimacy pressures influence for manufacturing SME's for the environmental behavior. Among them environmental regulations, complying with environmental law and governmental related standards have widely affected for the adoption and being environmental friendly. The final objective of the research was to identify which institutional pressure is most dominant for the adoption of EMA among SME's manufacturing entities in Anuradhapura. The findings support that coercive isomorphism which clearly describes regulation and legitimacy influence play a vital role in adopting EMA in SME's.

The author found that, there is a lack of application and knowledge regarding EMA practice among SMEs' manufacturing entities in Anuradhapura district. Therefore it should apply strategies to adopt EMA practices through coercive isomorphism hence it is the most important and forceful factor for the EMA adoption. As recommendations the government and provisional regulation bodies should motivate proprietors or accountants in SME's to adopt EMA through stronger incentives for compliance of environmental regulation law (e.g. pollution charges,

pricing policy for natural resources, to set targets to promote environmental friendly performance), provide workshops to improve and spread knowledge regarding environmental impacts and accounting techniques for them. Adapting policy instruments to SME specifics could increase their effectiveness. Therefore, this study contributes society to being eco-friendly and for the sustainable development.

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