

**FACULTY OF BUSINESS**

**BM401 Comprehensive Research Project**

**Research Proposal:**

**Environmental Management Accounting practices within Higher Education Sector in Sri Lanka**

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List of Abbreviations

EMA-Environmental Management Accounting

SDG-Sustainable Development Goals

USEPA- United States Environmental Protection Agency

UNDSD-United Nations Division for Sustainable Development

WWF-World Wide Fund

# 01.Introduction

By today, environmental management accounting (hereafter known as EMA) has become most salient component within all the business entities, not only Sri Lanka but also whole world, which used to describe different aspects of field of accounting and it has taken considerable place among the persons who are interested in taking management decisions within those business entities. Mainly EMA is focused on internal decision making which acts as a management accounting tool. Many of past researchers have described EMA as various ways.

However, EMA is commonly defined as the identification, collection, analysis and use of physical information on the use, flows and destinies of energy, water and materials (including wastes) and monetary information on environment-related costs, earnings and savings for internal decision making (Gunarathne,2015). EMA provide two types of information Physical and monetary. Physical EMA information describes the consumption of resources and the monetary EMA information entails financial value assigned to physical EMA

Mainly through our study, we are focusing on EMA practices within higher educational sector in Sri Lanka. Many researchers on EMA are focused on developing countries while less attention was given to the EMA practices on emerging economies. Sri Lanka is the developing country where the EMA practices are still in infancy level of adopting and implementing them. Even though Sri Lanka studies have more focused on EMA practices in manufacturing and service sector industries they have typically failed to emphasis on EMA Practices within higher educational sector.

Through this study we are like to discover how are the major environment costs both physical and monetary costs, what are the limitations that affected to environment friendly accounting practices and how to enhance available environmentally favorable accounting practices within the university setting.

This study contributes mainly to provide specific information about how major environment costs manage and accounted in the higher educational sector and basically, how key personnel involve to control environment impacts and current states and future potential of EMA practices as well.

# 02.Problem Statement

Environmental Management Accounting Practices were raised in order to account environmental impacts caused due to commercial activities. Numerous recent studies on EMA from different perspectives reflect the importance of accounting when pursuing environmental management Strategies.

EMA is as wide ranging in its scope, techniques and focus as normal management accounting. In last few years EMA has developed in to corporate environmental management. It has often been suggesting as the interface between management reporting and corporate environment management strategies.

In world some industries such as hotels and tourisms, plantation, apparel and manufacturing industries are adopting EMA practices to their organizations but in academic industry rarely used EMA practices. It is true that universities make lower knowable environmental impacts relative to manufacturing industries, but they still have several significant environmental impacts both direct and indirect. Lots of studied on EMA are now in academic journals, covering issues and perspectives on the subjects (Gunarathna, November 2016).

As a developing country Sri Lanka also adopting and implementing EMA practices within organizations, but it still in initial stages. Even though Sri Lankan studies have more focused on EMA practices in manufacturing and service sector. They have typically failed to emphasis on EMA practices within the Higher Education Sector. This unexplored area has led to conduct this research to fill this gap.

# 03.Research questions and research objectives

## 3.1. Research questions of the study

* How are the major environmental costs, both physical and monitory costs, being managed within the available accounting system?
* How the factors influence to adopt environmental – friendly accounting practices within the higher education sector?
* How to enhance the available environmentally favorable accounting practices within the university settings?

## 3.2. Research objectives of the study

1. Explore the current EMA practices used to manage environmental cost with in higher education institution

In relation to the first objective, this study focuses upon examining up to which level institutions are practicing environmental management, how they are managing major environmental costs, if they are not practicing EMA what are the influences that impact upon them?

2.Recommend how to enhance the current EMA practices within the higher education sector in Sri Lanka.

With regard to the second objective of the study, it attempts to extend the applicability of EMA throughout the institutions by providing recommendations made based utilizing the investigated information as per the first objective of the study.

# 04.Literature Review

After recent man-made and natural disasters like Petroleum Spill in the Gulf of Mexico, Minamata disease (disaster caused due to release of toxic mercury in Minamata Bay, Japan), Tsunami, melting of glaciers and global warming have led to numerous social and environmental consequences (Gunarathne & Lee, 2015) And these disasters have made people to drew more attention towards the sustainable development. In order to foster the sustainable development world leaders responded by adopting the seventeen sustainable development goals (SDGs) in September 2015 to address the environmental concerns (Nations, 2016).

As many persisted that there were numerous negative environmental and social impacts are caused due to irresponsible acts of business organizations (Dilling, 2010).As organizations are being mostly accountable for environmental problems, investors were very keen on adopting sound management business strategies while customers drew more consideration to responsibilities that organizations should perform towards society and environment (Belal & Cooper, 2008).These facts have led to surge prevalence in sustainability reporting within organizations.

The 2018 Living Planet Report, published by World Wide Fund for Nature (WWF, 2018)disclosed the following recent threats faced by the environment;

* Overall 60% decline in the size of the species population from 1970-2014.
* Freshwater Living Planet Index shows 83% decline from 1970.
* Land degradation has seriously 75% of the terrestrial ecosystems
* Bees, other pollinators and soil-under threat causing critical conditions for global food security.
* Overfishing and dumping plastics have catastrophically impacted the ocean and freshwater biodiversity.

Above mentioned factors give us a clear notion that, concerns about the environment should become a need not a mere trend. To enhance economic and environmental performances simultaneously, it is more important to identify and use effective tools in cooperate management for right decision making (Schaltegger, et al., 2013;Sroufe, et al., 2002). Evolution of those tools have redesigned the concept of environmental accounting and made it necessary for a business success (Delmas & Toffel, 2004; Lee, 2009)

Environmental Accounting provide environment-related information for both internal and external stakeholders along with the explicitly considered impacts for the environment. (Burritt, et al., 2002). According to Gauthier , Leblanc ,Farley & Martel, (1997) accountability towards the context of environmental accounting is; “the obligation imposed on a manager (leader administrator, etc.) by the law or a regulation or contract to demonstrate that he or she has managed or controlled, in accordance with certain implicit or explicit conditions, the resources with which he or she has been entrusted. Accountability, therefore, requires disclosure of the information deemed necessary to account for the company’s performance with respect to the issues and objectives previously established. In context of accounting a company must account for its overall performance, including its performance with regard to environmental issues”.Even though there are many different definitions for environmental accounting, environmental accounting considers monetary as well as physical environmental costs.

As stated by the United States Environmental Protection Agency (USEPA, 1995b) national income accounting, financial accounting and management, all these three contexts come under the shelter of environmental accounting. For firm, regional or national level it can be applied (James, 2000; Deegan, 2003; USEPA, 1995b). Howes, (2004) states that environmental accounting is compromised based on the link between environmental and financial performances within the organizational culture and the operational process where “environmental sustainability” is embedded in it.

As defined by Grey and Bebbington, followings should be included in environmental accounting;

* “Accounting for contingent environmental risks/liabilities.
* Accounting for asset re-valuations and capital projections as they relate to the environment.
* Cost analysis in key areas such as energy, waste and environmental protection.
* Investment appraisal to include environmental factors.
* Development of new accounting and information systems to cover all areas of environmental performance.
* Assessing the costs and benefits of environmental improvement programs
* Developing accounting techniques which express assets and liabilities and costs in ecological (non-financial) terms” (Gray & Bebbington, 2001).

Environmental Management accounting is a part of Environmental accounting which measure, account and analysis of physical and monetary environmentally-related information in order to enhance the organizational financial performances while contributing to environmental conservation (Bartolomeo, et al., 2000).According to Correlje (2003)EMA is; “accounting systems and techniques that provide decision makers and management with financial and non-financial information about the firm or organization and its environment”.

United Nations Division for Sustainable Development states, “EMA is simply a better and more comprehensive approach to management accounting with a particular focus on costs related to wasted raw materials and other environmental issues. Key points are;

* EMA focuses on costs internal to the company; EMA does not include costs to the society or the environment for which a company is not held accountable.
* EMA places particular emphasis on accounting for environment-related costs (e.g. waste management cost, cost on waste raw materials)
* EMA is useful for many management activities and decision making
* EMA’s main purpose is providing information for internal stakeholders but it is being used for external reporting as well.
* EMA encompasses not only cost management but also information on quantities, flows and disposal of material and energy” (UNDSD, 2003)

Many of the studies have focused on the significance of environmental reporting towards the manufacturing organizations and their impacts (Kim, 2002; Nakajima 2004; Stefan 2003; Koefoed, 2010; Möhr-Swart, 2010; Setthasakko, 2010; Jalaludin, 2011; Lee, 2011), yet many of them have made regarding the environmental reporting of developed countries while less emphasis was given to sustainability reporting in countries with emerging economies (Schaltegger, 2010)

Sri Lanka is classified as a middle-income developing country, while it is a greater challenge for Sri Lanka to achieve high economic growth without causing unalterable damages for the environment. At present Sri Lanka is facing many environmental problems land pollution and degradation, loss of bio-diversity, water pollution, coastal erosion and poor industrial management (Goger, 2013).

Moreover, apart from the usefulness of EMA for service sector industries, lesser number of service organizations implement EMA practices, specially a developing South Asian country like Sri Lanka (Veen, 2002).

When compared to other manufacturing and service providing organizations the costs for the environment caused within the universities are comparatively low. But there is a general absence of strategies that adopted to address and manage the environmental costs within the context of universities (Chang, 2007).

When analyzing the existing literature published since recent years discloses that they have not explored the environmental-friendly practices within the setting of higher educational sector in Sri Lanka, their current state of adoption and what will be the future potentials of them which this exploratory study will reveal.

# 05.Significance of the study

* This research investigates up to which extent that universities are practicing environmental -friendly accounting practices within the context.
* More significantly this contribute towards providing information about how the universities are managing and recording both main monetary and physical environmental costs, and how the managers and other key personnel contribute towards controlling the environmental costs within the university setting.
* This identifies the barriers/limitations that influence unfavorably in adopting the EMA practices.
* Providing recommendations for higher education institutions to embrace some of EMA.

# 06.Research Design

## 6.1Background Approach

This will highlight and explain the research design that will use during the research project. It begins with the adaptation of qualitative research, which recommends a case study as the research strategy, according to the “Tshwane University of Technology proposed their methodological framework as, data was collected by means of exploratory research techniques in this research using two data sets. This needs to address the research issues through exploratory approach” (Chang, 2007). The main method of data collection will be in-depth interviews using semi – structured questionnaire with opened and closed ended questions held with the participation of key personnel from the participating universities. In addition, study about data collection will be analysis of additional documentations and websites provided by universities.

Figure 6.1.An overview of how research will be carried forward

Determining the universities to study

Decide on the Key personnel from the participating universities

Decide on the Key personnel from the participating universities

Conduct the In-depth interviews with key personnel

Transcribing interviews

Analyzing the Data

Develop Conclusions from the findings

## 6.2. Method

This qualitative case study is an approach to research that facilitates exploration of a phenomenon within its context using a variety of data sources. This ensures that the issue is not explored through one lens, but rather a variety of lenses which allows for multiple facets of the phenomenon to be revealed and understood. Therefore, study will adopt a qualitative research method, which addresses the research issues using exploratory study which will be carried through case approach was adopted because it allows flexibility to help the researcher uncover important factors and issues arising from a real-life context. To make the overall study more robust, a multiple-case design was chosen (Yin 2003b).and main data collection as in-depth interviews.

## 6.3. Conduct of the Research

The research will be carried out in three stages. Stage one is selecting universities and participants of key personnel from each chosen university. Stage two explains about data collection via in-depth interviews with participants. Transcribing and translating interviews involved in stage three.

Stage 1– Selection of universities

As stated by University Grants Commission (UGC) of Sri Lanka, higher educational institutes can be classified under different categories; mainly research study focused on UGC approved public and private universities.

8 out of 26 UGC approved public and private institutes are considering as the sample size of the population, Moreover 5 from public and other remaining 3 from private universities for this study.

Stage 2 – Selection of Participants

“A snowballing sample technique was used to identify senior staff with an interest in and understanding of environmental and sustainability issues as they impact on the organization. The snowballing technique worked effectively, producing fourteen potential respondents; ultimately ten participants were chosen because of their seniority and experience of the issues being discussed” (Denscombe, 2010). Likewise, sample size of the participants for the study will be based on the snowball sampling technique for this study. The degree to access the sample size of the case study population will be ranging 1-2 key personnel from each institute. The interviews will be carried out with key personnel across both administrative and academic departments based on their seniority and experience of participants.

To achieve the first research objective, it is required that at least one key personnel from the accounting division and the resources/facilities management department of each university.

Stage 3 – Data Collection

The primary method of data collection was derived from interviews and questionnaires, which will be carried by proposing an in-depth individual face to face interviews and telephone interviews, to capture the insight of the key personnel. The interviews will be conducted an informal style from the participants of academic and administrative departments. Furthermore, all the interviews will be recorded word-by-word conversation, while it is expecting to be carry the interview for 30 minutes between the interviewer and interviewees. Data for this study, two questionnaires with interview questions will be designed to meet the first research objectives. The questionnaires are consisting of semi-structured with open-ended questions are proposed to collect the data. This methodology is both deductive and inductive.

Stage 4 - Transcribing interviews

Corresponding to the Marshall and Rossman (2006) argue that neither transcribing text is ‘merely technical task’ and ‘both entail judgement and interpretation’. It highlights that data gathered through interviews should be transcribed, which are not identify as raw data, but it automatically transcribed to the ‘processed data’.

## 6.4. Data Analysis

The main method of data collection will be an in-depth interview; data that was used for the interview will be coded according to the prerequisite codes that are based on the theory. The coded data that used for study analyzed via within approach of case study and cross analysis. These two approaches ensure the accuracy and reliability of results and findings.

### 6.4.1. Unit of analysis

Neuendorf (2002) defines the unit in a research study as the individual thing that is the subject of study, and the unit of analysis as the element on which data are analyzed and for which findings are reported. Yin (2003b) states that how the unit of analysis, or the case, is defined depends on the initial research questions proposed. According to the research study unit of analysis will be is the key personnel ‘participant’ from the eight universities in Sri Lanka.

### 6.4.2. Coding the Data

The initial codes will be representing the subcategories of theoretical or substantive to represent the research themes according to the In-depth interview questions. Substantive categories mainly explaining the research participant’s concepts and beliefs and not imply the broad of the abstract theories. Moreover, the theoretical framework is more concerning rather than research participant’s concepts and beliefs are shown in the theoretical categories.

To conduct the research study of subcategories of theoretical or substantive and interview data will be coding through qualitative research software package NVivo7.This software enables texts to code through word by word, paragraphs, sentences and it is easily sorting with the specific code.

For the qualitative data analysis, structured display coded data will be enhancing the reduced the data, keeping precise recording data with the parallel with the research questions. This will be present as a matrix for data display.

Figure 6.2.Research Roadmap



# 07.Time Frame



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# Appendixes

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| Conference Name | Conference Date | Submission Date | Venue |
| ISERD - 608th International Conference on Accounting and Finance (ICAF) | 16th June 2019 to 17th June 2019 | 8th of May 2019 | Colombo, Sri Lanka |
| IASTEM - 661st International Conference on Economics and Business Management (ICEBM) | 16th August 2019 to  17th August 2019 | 8th of July 2019 | Colombo, Sri Lanka |
| Academicsera – 530th International Conference on Economics Finance and Accounting (ICEFA) | 16th September 2019 to 17th September 2019 | 8th of August 2018 | Colombo, Sri Lanka |