

ENVIRONMENTAL MANAGEMENT ACCOUNTING AS A PERSPECTIVE FOR HOTEL SUSTAINABILITY A CASE STUDY FROM A SRI LANKAN HOTEL

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ABSTRACT

The consequences of the global climate change and degradation of ecosystems have created a tendency for the hotel industries to adopt and implement cleaner and safer environmental practices to their business operations. Since Environmental Management Accounting (EMA) has been witnessed around the globe as an effective tool which directs an organization to achieve the goals of sustainability, this study is designed to examine how EMA can be used as a tool to assess a hotel's impact on the environment and its contribution towards the Triple Bottom Line (TBL). To proceed the study, a qualitative approach is adopted using a case study method. Since Environmental Management Accounting and sustainability accounting are broader concepts, an in-depth analysis was undertaken in an environmentally friendly hotel in Sri Lanka. The data collection process was mainly done using semi structured interviews as well as non-participative observations and document analysis. The findings of this study reveal that even though hospitality industries in the developing countries lag behind the commitments to the concepts such as sustainability and Environmental Management Accounting, the selected hotel has implemented EMA techniques and practices to a greater degree of success. This greater adoption of EMA practices has not only ensured effective use of energy and water sources, improved employee and customer satisfaction, ensured compliance with legal requirements but also paved the way to gain a competitive position in the market place as a brand that upholds the green visionary and sustainability as their main strategic imperative.

Keywords: *Environmental Management Accounting (EMA), Sustainability Accounting (SA), Triple Bottom Line (TBL), Monetary Environmental Management Accounting (MEMA), Physical Environmental Management Accounting (PEMA).*

1. Introduction

Earlier, the concept of profitability is set as the sole indicator of business performance in conventional accounting systems and the success of a business is primarily evaluated by the level of profit it generates and the market value of its shares (Lodhia, 2001). This capitalistic focus on conventional accounting has completely neglected an organization's responsibility towards society and the environment which has often led to corporate scandals and environmental mismanagement (Tinker, 1985). Human induced disasters such as British petroleum oil spill in the Gulf of Mexico, global warming, and some of the major industrial scandals occurred during the past decades also proved that the operational processes of corporate entities have the potential of generating an adverse impact on ecological and societal systems (Setthasakko, 2010; Handfield, Sroufe, & Walton, 2004). Since then, environmental protection has become an immense obsession virtually around the world. Many stakeholders including consumers, local community and international organizations embraced the concept of sustainable development which promotes economic growth while protecting the environment and natural resources simultaneously (Setthasakko, 2010; Zhu & Sarkis, 2006).

The more environmental concerns gain attention in the field of accounting, the less conventional management accounting systems and practices were taken into account due to its negligence to separate, identify, classify, measure and report environmental information including environmental hidden costs (Burrill, 2004).

Since then, many steps have been taken to mitigate those contradictions in conventional accounting practices. As a solution, a body of accounting practices named as Environmental Management Accounting (EMA) has emerged as an interface between Management Accounting and Environmental Management which incorporates environment-friendly concerns and practices into traditional accounting (Bennett, Bouma, & Walters, 2002). EMA is a decision support tool which provides information for the managers to successfully implement environmental strategies within the organization (International Federation of Accountants, 2005). Due to its evolving nature, no universal boundary has been emerged to define EMA discipline, but it can be 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 environmental related costs, earnings and savings for internal decision making (Gunarathne, Peris, Edirisooriya, & Jayasinghe, 2014; United Nations Division of Sustainable Development UNDS, 2001). EMA has always been an effective tool which directs an organization to embrace the goal of sustainability while performing a fair share of its environmental responsibilities (Lisi, 2015; Gibassier & Alcouffe, 2018). The concept of sustainability is referred to as an accounting framework that ensures stakeholders on information which reflects a company's economic, social, and environmental impact and demonstrates the interconnection between them (Persic, Jankovic & Krivacic, 2017). Johnstone

(2018) argues that EMA acts as a useful framing mechanism in theorizing and modeling social controls which could be the missing link to social sustainability. In a nutshell, successful implementation of EMA techniques helps organizations to obtain environmental sustainability as well as social and economic dimensions in the triple bottom line.

However, when concerning the evolving environmental issues, highly polluting industries such as hotel sector organizations become a matter of interest due to the high consumption of natural resources and the piles of harmful waste generated into the environment (Jankovic & Krivacic, 2014). Due to its continuous growth and diversification more attention needs to be paid on influencing hoteliers to establish sustainable business practices and reliable tools to assess the business impact on the environment (Qian, Burritt, & Chen, 2015; Embuldeniya & Rajapaksha, 2015). Ever since the first world conference on sustainable tourism held in 1995, the debate of sustainable tourism is gaining greater attention around the globe (Iraldo, Testa, Lanzini & Battaglia, 2017). The Agenda published by the Commission of the European Communities (2007) for a sustainable and competitive European tourism highlighted the close interrelation between the concept of sustainability and tourism sector. In the tourism sector, profitability largely depends on the quality of its tourist destinations. Tourists recognize the quality of destinations depending on how well the hoteliers care for the natural environment, wellbeing of employees, local populations and social interaction. As a part

of the tourism industry as well as due to the close connection, the hotel sector is similarly accountable here. A survey conducted by the renowned travel agency in the year of 2018 reveals that 87% of 4,768 respondents prefer sustainable traveling while 67% of tourists would prefer to stay in eco conscious hotels (Sustainable travel report, 2018).

Even though the word sustainability has turned out to be a buzzword in global tourism, less attention was given to identify the sustainability practices in the hotel sector (Gunarathne & Lee, 2013). However, the existing literature only provides insights and guidance for the development of EMA practices but do not provide a comprehensive framework for sustainability accounting which helps to identify the differences in EMA and sustainability in accounting (Abdullah , 2018). Thus far, most of the studies address sustainability accounting from the standpoint of environment rather than providing equal attention for all three dimensions of environment social and economic sustainability (Bebbington & Thompston, 2013). In order to bridge this gap in literature, this study aims to examine the adoption and current status of EMA techniques in a leading environmentally friendly hotel in Sri Lanka. Furthermore, more attention will be paid on how these effective implications of EMA techniques will mainly contribute towards the environmental sustainability as well as economic and social sustainability at a level of a firm in the hotel sector in Sri Lanka.

2. Objectives of the Research

The aim of this study is to reveal how EMA practices contribute in achieving social, economic and environmental sustainability at a level of a firm in the hotel sector. Accordingly, this study is supported by following two objectives:

- i. To identify the current Environmental Management Accounting and reporting practices of hotel JH in Sri Lanka.
- ii. To identify the impact of Environmental Management Accounting practices towards hotel JH's sustainability.

3. Review of Literature

3.1. *The emergence of Environmental Management Accounting*

The accountants and managers faced various inconveniences when measuring environment related costs in business operations due to the failure of cost accounting practices to provide adequate and accurate information for environmental management and environment-related cost management (Jones, 2010). Further, it is noted that the quality of the environmental information revealed by the organizations varies and differs in most instances and organizations mostly gather environmental information regarding the issues which has a significant impact on its performance (Frost & Wilmshurst, 2000). As a consequence, many organizations misinterpreted both costs and benefits in environmental management which led to major failures in terms of identifying and preventing emissions and waste in operations (Jasch, 2003).

Since then, the change of traditional management accounting practices towards environmental concerns has drawn attention of many scholars throughout the years (Napier, 2006). Many studies emphasized the prerequisite of discovering more accurate and precise tools and techniques to measure the flow of physical costs such as energy, water and materials and their associated costs in an organization (Masanet-Llodra, 2006). Specially, there seems to be a growing interest in new accounting practices such as environmental and social accounting which emerged as a solution for sustainability issues. At present, EMA is ranked as one of the top five most commonly used strategic tools in management accounting, even though the implementation of environmental management accounting is voluntary and not defined by the accounting standards (CIMA, 2009). However, less attention was given to identify the adoption and implementation of EMA techniques of organizations in South Asian countries such as India, Sri Lanka and Pakistan even though these South Asian countries contribute significantly to the global economy (Gunarthne & Lee, 2015).

3.2. *Overview of the three pillars of sustainability performance*

The findings of Du Pisani, (2006) reveals the historical evolution of the concept of sustainability over the centuries. He states that the roots of the concept of sustainability emerged with the industrial revolution which draws the attention of the society to use scarce resources in a more sustainable way due to the fear of that future generation will not be able to meet

their own needs. According to Bebbington (2001) sustainability refers to developing the organization as well as the environment together, whereas the development must be sustained within the limits of nature. At the corporate level, sustainability is merged with Corporate Social Responsibility (CSR) which contributes to the three pillars of sustainability; economic, environmental and social (Sariannidis, Garefalakis, Ballas & Grigoriou, 2018). The three sustainability dimensions which is also known as the Triple Bottom Line (TBL) serves as an integrated framework of business accounting that integrates environmental and social performance outcomes into the profit-based financial reporting model (Yenidogan, Gurcaylilar & Tetik, 2016). The word “triple” highlights the importance of providing equal attention to all three dimensions rather than concerning more on financial results. In simple terms, the triple bottom line is the concept of 3Ps ‘Profits, Planet and People’ which is also known as the economic growth, establishing environmental policies and social justice and equality (Alameeri, Ajmal, Hussain & Helo, 2017).

Even though the concepts of Corporate Social Responsibilities and Triple Bottom Line evolved rapidly among the business community, there is a need of clarity enhancement regarding what depicts by “social” dimension of Triple Bottom Line (Miller, Buys & Summerville, 2007). Social dimension can be explained as the positive relationship with the firm’s stakeholders in terms of customers, local community, employees, government etc. (Rakicka, 2016). In simple terms, it is an analysis of the effects of a company on its stakeholders

(Persic et al., 2017). According to the Sustainable Business Network (SBN) (2003) the organizations who are committed towards implementing and practicing social responsibilities get the opportunity to improve their financial performance in the following areas, such as occupational health and safety initiatives, staff retention, avoiding recruitment and training costs, building the reputation of the business and customer loyalty.

The environmental dimension focuses on unveiling the organization’s impact on the environment and the usage of natural capital (Legrand & Sloan, 2014). EPA (1995) also suggested some key concepts and terms for EMA applications and described how the effective management of environmental practices promote more accurate costing and pricing of products in aid of designing more environmentally friendly processes, products, and services within an organization. The study of Willard (2002) presents seven benefits in implementing triple bottom line in an organization such as increment in revenue and productivity, decrease in energy, waste, raw materials and water costs, reduction of operational risks and work satisfaction. In many instances, hotel sector organizations who embrace the concept of triple bottom line are not only able to reduce significant operating costs in terms of water, energy, material within the premises but also capable of providing a mesmerizing experience using their eco-friendly practices which draw the attention of many visitors (Lee, Hsu, Han, & Kim, 2010).

3.3. Applicability of EMA into tourism industry

According to the background sources 98% of the European hoteliers in developed European countries do believe that hotel activities have an adverse effect on the environment (Bohdanowicz, Simanic & Martinac, 2005). Shanklin (1993) highlighted four key environmental issues in the hospitality industry such as energy usage, water quality, solid waste and environmental pollution in his empirical study on the implications of ecological age in the hospitality industry. These ample findings draw attention of many scholars to explore more on the prerequisite and the application of environmental policies in hotels (Chan & Hsu, 2016). In 2008, the world's first entirely sustainable and ecological-friendly hotel was established with many renewable energy sources for instance solar panels, wind turbines, rainwater collecting mechanisms (Fukey & Issac, 2014). Further, Inter Continental Hotel Group (IHG) is recognized as the first group of hotels who developed a guideline that refurbishes hotels into more sustainable and greener practices by using renewable and clean energy sources for the operations of the hotels (Pizman, 2008). As a result, the majority of the external and internal stakeholders in the tourism industry embrace the concept of "environmentally responsible hotels".

Over the years the need for implementing environmental management systems and environmental accounting tools have emerged with the increase of environmental awareness among the public. Consequently, hotels tend to implement environmentally sustainable business practices and reliable

tools to assess the impact of the hotel on the environment. The hoteliers can gain a competitive advantage by operating in a more responsible manner by implementing an effective performance management system which monitors and audits the organization's strategic goals on sustainability action plans (Wagner, 2013). EMA can be applied in the following major areas of a hotel such as pricing, budgeting, investment appraisal, calculating costs and savings of environmental projects or when performing targets.

3.4. Contribution of EMA towards hotel sustainability

One of the leaders in the global hospitality industry, C.J Nassetta the President and Chief Executive Officer of Hilton worldwide holdings mentioned in the executive summary of CSR report that sustainability is the core concept, the organization's operations are based on (Hilton worldwide, 2012). The findings of a study conducted among 1000 CEOs from 100 countries in 25 different sectors reveals that 89% of CEOs agreed to the point that sustainability is the most crucial element for an organization's success (Jones, Hillier & Comfort, 2014). EMA strategies help organizations to obtain social, economic and environmental sustainability. Delphine and Simon (2018) emphasis on the need for deconstructing existing EMA tools for a better understanding of its weaknesses and how it shall be reconstructed to achieve the goals of sustainability. Therefore, it is essential to have accurate and robust sustainability assessment tools that are based on sound theoretical foundations backed by empirical shreds of evidence

(Gasparatos, El- Haram & Horner, 2009). According to the work done by Priego (2008) the Triple Bottom Line which denominates economic, social and environmental sustainability shows a positive relationship between the sustainability and the values of the companies.

The Global Reporting Initiative pioneered the development of the world's most widely used sustainability framework to report on the Triple Bottom Line (Persic et al., 2017). Thereupon, GRI reporting framework can be known as a broadly recognized leader in sustainability reporting practices (Mahoney, Thorne, Cecil & LaGore, 2013). Delphine and Simon (2018) argue that the guidelines, philosophies and the indicators given in Global Reporting Initiatives provide a satisfactory level of measurement and reporting on the economic, environmental and social performances of an organization. The Green Globe 21 Programme which is created internationally to promote sustainability goals in the tourism industry suggests that the precise usage of certain key performance indicators (KPIs) such as measuring emissions of carbon dioxide, energy efficiency, air quality preservation, noise control, waste water management, reduction of solid waste and conservation of ecosystems ultimately leads to the long-term sustainability of a hotel (Jankovic & Krivacic, 2014). The research of Gunarathne and Lee (2015) identified three stages of an organization where proper implantation of environment management programmes at the stage one leads to stage three where organizations integrate environmental considerations into its long-term sustainable strategies. However, when considering the

existing literature, it reveals that a rare number of researches have been conducted on how the Environmental Management Accounting tools can be used as a perspective for the sustainability of an organization mainly in the hotel sector. Therefore, we are attempting to fill the gap in the pertaining literature.

4. Research Methodology

4.1. Research site and collection of data

Among the best places to visit in Sri Lanka, Negombo is one of the well-developed beach centric tourist destinations that provides mesmerizing experience to the travelers due to the attractive view of the coastal line, southern sandy extremity and for its old Portuguese and Dutch architecture. Since Negombo has become the spotlight in the tourism industry for ages, many hoteliers in this area tend to adopt current trends in global hospitality to protect and preserve the environment. Therefore, to conduct the research procedures an ecofriendly hotel was selected as the research site in north-western coast of Sri Lanka. The selected hotel belongs to a prestigious group of hotels, considered as one of the pioneers in sustainability tourism within the Sri Lankan hospitality industry. Thus far, among the 40 hotels which belong to this family, the selected hotel in Negombo is considered as the sustainability leader among the group. Currently it serves as one of the leading hotels that initiated EMA practices within the industry. Due to the privacy concerns, the above selected hotel is referred to as hotel JH in the study.

Currently, the hotel is successfully functioning by integrating sustainable initiatives and 'green thinking' concepts into its operations. The hotel embraces the honor of being the pioneer in establishing number of initiatives across the property as well as an icon of responsible tourism on the western coastline. The sustainability strategy of the hotel concentrates on six key categories identified as energy and carbon, water and waste, biodiversity, community and culture, family and sourcing and production. Recently, the hotel JH was recognized for the effort of contributing towards an energy secure Sri Lanka by the Sri Lanka Sustainable Energy Authoritative in 2018. Besides that, the hotel was awarded with a bronze medal at the first sustainable tourism certificates awarding ceremony by Biodiversity Finance Initiatives (BIOFIN) of UNDP for continuous effort to build the country's reputation as a sustainable tourism destination.

In order to conduct the research, a qualitative approach was adopted using a single case study method. Due to the qualitative nature of the two research questions addressed here, an in-depth analysis was undertaken by using semi structured interviews and secondary data as the main sources of information. This method is considered as a less structured, open and flexible method which allows the participants to express issues that are important to them. The use of qualitative methods provides fruitful and descriptive explanations for the selected research issues through emic perspectives. During the data collection process of this study, more attention was given on obtaining information through interviews and non-participatory observations in order to get a better

understanding about the real-life phenomena when adopting EMA techniques in the selected hotel premises. Since the sustainability division of the Headquarters branch is primarily responsible for monitoring and implementing the sustainability strategy across the JH group, the initial interview was arranged with the Assistant Sustainability Manager of the Headquarters, prior to the pilot visit. The Assistant Manager of the sustainability division explained their commitment towards sustainability initiatives, the duties and responsibilities of her position as well as the sustainability strategy of the group. All the gathered information at the initial meeting was beneficial in formulating questions for the semi structured interviews during the pilot visit.

Accordingly, the researchers visited the hotel premises which is approximately 43km away from Colombo during the first week of March with the permission from the headquarters branch of the hotel. The Chief Engineer of the hotel guided the visit during the first half and the second half of the visit was guided by the resident Naturalist at the hotel. During the first visit three separate interviews were taken from various personnel in charge of the laundry, resource center and bottling plant. These interviews lasted about 20– 25 minutes. Then a visit was made to the location where the local treacle makers tapped the resident coconut trees for sap and to the place where the on-site toddy production happens. Additionally, another visit was made to a nearest site where the hotel has planned to host an organic garden. After visiting the locations semi structured interviews were held with the Chief Engineer and the

Naturalist by covering more than 60 questions regarding energy, water, waste water, solid waste and air quality management, EMA techniques, environmentally-friendly purchasing, health and eco-consciousness, organic gardening and biodiversity conservation. The interviews conducted with the Chief Engineer and the Naturalist lasted more than one hour. Due to the limited time frame, rest of the interviews were scheduled to be held on another day.

A subsequent second visit was arranged with the intention of covering one officer from each of the following departments including Human Resource division, Accounting division and Engineering office. But due to the Covid 19 global pandemic all the scheduled interviews had to be postponed and many restrictions were implied by the hotel to ensure the safety and the security of the guests and their associates. Besides that, the hotel was given over to quarantine at the request of the military. Therefore, the request made for a physical visit was rejected and the second round of interviews were scheduled over the phone. Formal interviews were conducted over the phone by selecting the most appropriate officers who are in charge of preparing green reports and implementing sustainability practices within the firm.

4.2. Theoretical framework

The research findings of this study adopt stakeholder theory as the conceptual underpinning to explain the contribution of EMA towards the sustainability of a selected Sri Lankan hotel. Stakeholder theory is based on the belief that an organization ought to be sensitive to the interest and concerns of its shareholders as well as stakeholders such as

suppliers, employees, clients, society at large which helps to obtain long-term success in the business. Enhancing partnership and frequent dialogues with the diverse stakeholders lead organizations to engage more proactively with the wide variety of stakeholders and aids in managing pressure from the external environment.

Similarly, the concept of corporate sustainability also pays more attention to the societal and ecological environment and highlights the interdependencies amongst the organization and its societal and natural environment. Since stakeholder theory consists of social responsibility elements, later it was combined into social issues in management (Wood, 1991), and recently it has begun to take part in the discussion on sustainable development (Sharma & Henriques, 2005). Equally, both concepts neglect the view of profit maximization in the short-term and share a wider consideration on the embeddedness, dependencies, responsibilities, aptitudes and potentials of companies. In both theories' ethical issues and business are considered as two interconnected concepts and argues instead of extricating these social and environmental issues from the business, these issues have to be allied to the core business of an organization to create a real value for the stakeholders or to obtain the goal of sustainable development (Freeman, Harrison, Wicks, Parmar & DeColle, 2010).

Due to the popularity of this theory in analyzing corporate sustainability and sustainability management concepts, there seems to be instances where many

sustainability publications imprecisely refer to stakeholder or even misinterpret the approach (Freeman et al., 2010). The quality stakeholder engagement in sustainability reporting and accounting procedures helps to build creative solutions for various stakeholders' concerns, increases accountability responsiveness, transparency and develops close relationships with those who are interested in sustainability performance (Kaur & Lodhia, 2018). Gradually, stakeholder perceptions have transformed from the concept of "notify me" to "involve me" to integrate dynamic stakeholder desires and expectations in decision making (Cummings, 2001). This radical change influences organizations to recognize and address stakeholder concerns through proactive engagement approaches such as partnerships and collaborations (Andriof, Waddock, Husted & Rahman, 2002).

5. Findings of the Study

5.1. Implementation of EMA practices

The implementation of effective EMA practices aids an organization in measuring physical information on use of energy, water, material, waste and also provides monetary information on environmental related costs, earnings and savings for internal decision making. The key generators of environmental costs in an organization for instance costs of energy from non renewable resources, the excessive consumption of drinking water as well as generating piles of solid waste and waste water can be tracked through proper implementation of EMA practices. The following sections present the findings related to key areas that generate significant environmental issues in hotel JH and how

EMA has been used as a tool to assess the hotel's impact on the environment.

5.1.1. Energy management and conservation practices

The selected hotel follows some noteworthy energy management practices aligned with the energy management policy of the hotel. During the pilot visit, the Chief Engineer who holds the responsibility of sustainability practices of the hotel stated that;

"...At present, over 50% of the group of hotel's energy requirements is met by renewable energy sources. Earlier, the conventional air conditioning system of the hotel is regarded as the most carbon emitting and energy-consuming activity that consumed more than 65% of the total energy requirement of the hotel. Therefore, as a sustainable solution to reduce the grid electricity requirement drastically, we introduced Vapor Absorption Chiller that operates sustainably via steam generated from the onsite biomass gas boilers. The establishment of 300 TR Vapor Absorption Chiller in 2017 aided us in curtailing the grid electricity requirement drastically. Hence currently we are saving 5 lakhs on a monthly basis..."

Among many energy conservation methods, the hotel adopts biomass gas boilers as a substitute for the conventional chillers. The steam generated through these biomass boilers are used for the kitchen stoves which also comprises several biogas and cinnamon wood-fired stoves as a sustainable cooking equipment. The Engineer said;

“...We are the pioneers who started using cinnamon wood which is a by-product from cinnamon cultivation as a fuel for our biomass boilers. Using cinnamon wood as a fuel not only reduces carbon footprint as it sequesters carbon emitted from the burning of its wood but also creates livelihood for many locals. Through this program, most of the people found their livelihood in the field of cultivating, harvesting, and delivering cinnamon wood...”

The Engineer described another renewable energy source as follows;

“...As an energy conservation method, we have established the first 20kw off-grid, roof-mounted solar array in the family that is not connected to the national grid electricity. Another type of solar energy adoption is the establishment of 90 flat plate collector-type solar panels. As a sustainable method of hot water generation, these solar thermal arrays utilize flat plate collectors especially invented for optimal performance...”

Apart from renewable energy sources, a number of energy management practices have been implemented by the hotel due to a significant portion of energy usage for its daily operations and recreational activities. The table 1 below depicts physical and monetary EMA information of hotel JH. The central laundry of the hotel that provides service for all six hotels in the Negombo area also follows remarkable energy efficiency practices. The effective energy management of the laundry section of the hotel is perfectly explained by the in-charge person by stating;

“...We use less electricity for washing machines and all the other drying and heating activities of the laundry and is performed through renewable energy sources such as steaming power produced through biomass boilers. We always advise workers in the laundry section to perform the tasks using less water and electricity in every possible way. Centralizing these sections helped us to reduce wastage and high cost. As a sustainable solution for the water wastage, the waste water from laundry activities are properly recycled by the effluent water treatment plant and used for garden irrigation purposes...”

In addition to the above-mentioned energy conservation practices, the hotel conducts awareness sessions on a regular basis and all new and existing employees are routinely trained about energy conservation. The Human Resource Executive confirmed the above statement by mentioning;

“...We raise awareness on energy and water conservation practices to all new and existing employees through daily briefings, provision of appropriate training and by displaying notices on notice boards. We conduct a three-day orientation programme for all the new recruits on the sustainability initiatives including energy, water, waste and carbon footprint management practices to make them aware about our core values...”

Table 1: Physical and Monetary EMA information in energy management

Energy management (Monthly average)	2018	2019
Energy savings from renewable sources in units		
Solar PV (kWh)	432	305
Bio gas plant (m3)	259	287
Vapor absorption chiller (kWh)	114,539	101,006
Energy efficient lighting (kWh)	12,959	10,841
Energy savings from renewable sources in Rs value		
Solar PV	6,904	4,877
Bio gas plant	15,753	19,366
Vapor absorption chiller	848,505	633,143
Energy efficient lighting	239,189	197,909

Source: Headquarter data base of hotel JH.

5.1.2. Waste management practices

In the hotel, waste is considered a significant challenge as almost all the activities generate piles of waste on a daily basis. Hence, the hotel classifies all the collected waste according to the appropriate disposal strategies which aids in effective management of waste. One of the main objectives of the first ever water bottling plant established in the hotel premises is to reduce waste from the disposal of single used plastic bottles. In this plant, plastic water bottles are 100% eradicated from the system and as a replacement smart glass bottles are produced. The Naturalist and the in-charge person of the bottling plant collaboratively described;

“...JH hotels are working towards a ‘Zero’ plastic future. So, we have taken many initiatives to reduce the use of plastic within the hotel. We produce our own glass water bottles rather than using plastics. These water bottles can be recycled and it does not contain plastics. So, no harm is caused to the environment. We do keep daily records on the number of water bottles that we issued for

each and every section and for each and every hotel...”

Table 2: Physical and Monetary EMA information

Waste management (Monthly average)	2018	2019
a) Total wastage (kg)	15,030	14,670
b) Kilograms of waste sold (paper /plastics/bottles)	2,518	2,894
c) Income generated by selling waste (Rs)	<i>no record</i>	54,221
d) Expenditure incurred for waste disposal		N/A

on waste management

Source: Headquarter data base of hotel JH.

The table 2 above delineates monthly average values related to waste management. In managing waste, the hotel has implemented several waste reduction methods to minimize wastage at the source. The purchasing officers of the hotel are requested to give priority for the suppliers who use environmentally friendly packaging and avoid buying materials from suppliers who use excessive and damaged packaging to reduce unnecessary packaging of waste. To confirm this statement the Naturalist stated that;

“...The hotel gives more prominence on purchasing from local suburbs and the suppliers are well aware about the hotel’s environmental management strategy. Therefore 98% of the hotel supplies are delivered in environmentally friendly wrapping. When purchasing fruits, vegetables or groceries for the stores, we always advise suppliers to take back the plastic packaging materials which they have brought goods in. We do not encourage plastics in the hotel premises...”

The local three-wheel drivers who transport tourists to the hotel premises are thoroughly informed about the environmental policy of the hotel. Therefore, the hotel has requested all the drivers to notify the tourists to dispose of their plastic belongings before entering the hotel premises. The Chief Engineer of the hotel highlighted the above point by stating;

“...Even though the three-wheel drivers provide services outside of the hotel premises, we continuously inform drivers about our green practice and encourage them to advise tourists to dispose of plastics before entering into the hotel premises. Therefore, the drivers who transport tourists to the hotel premises aids in reducing the plastic wastage drastically...”

The hotel has established a color-coded garbage bin system in each and every department to effectively separate glass, paper and cardboard, polythene and plastic and wet garbage at their source of origin. The personnel in charge of resource center mentioned about the plastic waste of the hotel in an interview;

“...All the waste collected from CSR projects and beach clean-ups conducted by the Naturalist and the waste collected within the hotel premises brought to this place named as “Resource Center”. We have also located color coded garbage bins in neighboring schools of Negombo area to collect plastic waste. After bins are filled with plastics, we bring it to this place, weigh the plastic load and pay money per kilogram. All the money is directly transferred to each school’s welfare society. At this point, we do not have funds or space to recycle plastic within the hotel premises therefore waste of paper, plastics

and bottles are sold to third parties for the purpose of recycling or reuse...”

5.1.3. Water conservation practices

The resident Naturalist of the hotel is the responsible personnel for water and wastewater management practices of the hotel. In a hotel environment, a considerable amount of cost is being allocated for water intensive activities such as swimming pools, laundry, guest rooms, kitchen, gardening etc. The establishment of separate water meters for each department has laid the foundation for the accumulation of MEMA related to water consumption rather than assigning the cost of water in overheads. As a water conservation method, the hotel has established water saving cisterns in guest and staff bathrooms including replacing all the toilets with low flush commodes, sensor operated urinals, low flow shower heads etc.

The catering section of the hotel follows some remarkable water management practices. In the staff canteen, a sensor tap has been installed that saves up to 328m³ per annum assuming that one wash without a sensor tap consumes 0.5 liters of water if the 600 persons in the staff washed their hands before and after a meal. Preventive maintenance is carried out by a technician using a properly planned schedule to examine the leakages and damages in water tanks, toilets, pipelines and taps. The awareness sessions emphasize on water management options such as water reduce, reuse and recycle with the aim of changing the attitudes of the employees to avoid water waste at every possible time, to reuse

water as much as possible and educating the importance of recycling water.

With the establishment of first ever effluent water treatment plant in 1990, all the wastewater generated onsite were treated using a biological wastewater treatment process. Naturalist who holds the overall responsibility of water management practices stated;

“...We pump wastewater through a small waterway where we have planted many aquarium plants. These plants also assist in absorbing all unnecessary minerals in the water. The water which is naturally treated through this method is again linked to the secondary water treatment pond for purification...”

5.1.4. Air quality and carbon footprint management practices

The following steps have been taken to improve the air quality management as a response to the climatic changes. The use of natural air fresheners, the minimal usage of aerosols, avoid using incinerations as a garbage disposal method and prevention maintenance is carried out in vehicles and other machineries on a regular basis to avoid carbon footprint. Prominence is given for the suppliers those who hold energy star/CFC free/energy efficiency ratings when purchasing new appliances to the hotel premises. The Chief Engineer mentioned about the active role performed by the hotel for a carbon neutrality future as follows;

“...JH hotels join hands with the ISO program of carbon footprint verification.

The aim of collaborating with this program is to minimize the carbon footprint within the hotel premises. In our hotel, the most energy-consuming and carbon emitting activity is air conditioning. By using renewable energy sources for the air conditioning system and laundry aid to minimize the overall carbon emission impact by 75%...”

By installing the chiller, the hotel was able to eradicate carbon emission by 752 metric ton per year which is equivalent to the carbon sequestered by 32, 470 trees assuming that a mature tree can absorb 48 pounds of carbon dioxide per year. The monthly average of carbon emissions in 2019 is 125MT CO₂e and the reduction of carbon footprint from renewable energy initiatives is 123MT CO₂e.

Table 3: Overall reduction of greenhouse gas emissions in 2017

Operational Carbon footprint of the hotel (metric tonnes CO ₂ per year)	1756
Average number of guests per year	60,346
Carbon footprint per guest stay (kg CO ₂ per guest stay)	29.11
Carbon emissions avoided by use of renewable energy sources and energy saving initiatives (metric tonnes CO ₂ per year)	707
Omission of Carbon footprint (kg CO ₂ per guest stay)	11.72
Percentage of omission	29%

Source: Green directory of hotel JH, 2017.

5.2. Establishment of EMA systems

Utilizing the modern web-based power analyzers, the engineering department detects the consumption patterns of energy and water in real time and historical data as well. They collect data on meter readings

but also aids in planning, implementing, controlling and reporting of EMA practices. During the interviews the Chief Engineer confirmed the above statements by mentioning that the engineering department continuously tracks physical information related to energy, water, carbon footprint and waste.

“...We have established sub-meters to identify water and electricity consumption in each and every section such as kitchen, guest rooms, office rooms, etc. Using this electricity sub-meters, we are capable of monitoring the temperature deviations of the highest energy consuming activity of the hotel which is the air condition chill water system and take necessary precautions when there is a deviation. We do keep separate records of solid waste and daily monitor the biogas digesters. In terms of water waste practices, we daily monitor and keep records of water consumption, deviations, units and Rs values of water produced from the effluent treatment plant...”

Under the energy related EMA practices, the information such as consumption (in units) and savings (Rs value) from solar PV system, grid electricity, key card system, solar hot water system etc being properly recorded. The PEMA aspect of energy is measured in kWh, voltage, m³ or ampere and the MEMA aspect of energy is measured in currency. Under the water management practices, the records such as water savings/reductions, total volume of water recycled/reused and the savings from waste water treatment plant is being monitored. The PEMA aspect of water is measured through liters/cubic meters and the MEMA aspect of data related to water is measured using Rs value. Under waste management practices, unit value of total

wastage, the kilograms of waste sold, the income generated by selling waste is calculated and under carbon footprint management the amount of carbon emissions in MT CO₂e and the carbon footprint reduction from renewable energy initiatives in MT CO₂e is calculated. By using the accumulated information, the Naturalist and Engineer prepare monthly reports and updates to a GRI system on a monthly basis. Through this system the entire group including the head office is capable of viewing these reports. Then Assistant Sustainability Manager in the head office analyzes monthly variations/deviations in the consumption patterns, identifies trend lines and savings, highlights the areas for the improvement and converts physical information to monetary values which aids in decision making, planning and reporting practices of the hotel. Through this process, the head office is able to compare energy and water demand trends across all the hotels in the family and identifies any abnormalities or wastage. Using the accumulated information, the Assistant Sustainability Manager prepares green directories for all 40 properties on a roster basis to enhance guest awareness on hotel's EMA practices.

5.3. The Impact of EMA towards the Triple Bottom Line

The hotel owns a sound sustainability policy that comprises of the hotel's social and economic contribution and the progress towards the reduction of ecological footprint. The hotel has implemented number of initiatives to reduce carbon emissions within the premises with the goal of achieving a

carbon neutrality environment in the future. Transition to renewable energy aided the hotel in minimizing fossil fuel usage and carbon footprint of the hotel drastically. The solar PV systems provide 5% of the total energy requirement of the hotel during the daylight. The biomass boilers, the largest single energy source of the hotel only uses the byproduct of cinnamon spice cultivation, the cinnamon wood as the fuel.

By identifying the value of biodiversity conservation, the hotel has taken a countless number of efforts for the conservation practices as a lasting impact for the world. One of the key responsibilities of the Naturalist of the hotel is to make guests, staff, researchers, university students, local community and school children aware of biodiversity conservation and environmental management practices. The resident Naturalist of the hotel continuously conducts seminars, workshops or awareness sessions on a regular basis. During an interview the resident Naturalist mentioned;

“...We work closely with the local schools in this area and conduct awareness programs on topics such as environmental protection, pollution, and sustainability on a monthly basis. This will be done by me and one other person. We have selected three underprivileged schools in this area namely Eiththukal, Palainthure and Kudapalu to conduct these awareness programs. Since we conduct many sustainability activities in each school, we had to limit our service to a smaller number of schools...”

As an environmentally responsible corporate citizen, the hotel conducts tree planting campaigns, cleaning campaigns carried out

at Muthurajawela marsh and beach cleanups. Thus far, the hotel conducts many projects with the partnership of Coca Cola company with the aim of reducing plastic usage among school children.

When considering the contribution for social sustainability ‘employee capital’ plays a vital role and the interviews held with the HR executive provided valuable insights on the recruitment policy of the hotel. The recruitment policy of the hotel does not discriminate on the basis of race, age, color, gender, religion, social and civil statues or sexual orientation. The hotel has established a zero-discrimination and harassment free environment recognizing skills and knowledge for work. During an interview hosted by the Biznomics in 2019 the Chairman of JH Symphony PLC stated that;

...We have very strict rules on sexual harassments. We educate our staff on what can be said and what cannot be said, how important it is to behave in certain ways in the company. Even a simple touch is not allowed. It is a serious offence in the company and we take disciplinary action against such behavior...

Since the overall responsibility of training and development lies in the shoulders of the Talent Managers in the Headquarters, planning and conducting employee development programs are coordinated through the headquarters. Mostly, the training and developments are carried out by in-house trainers, while certain programs are conducted by outsourced resource personnel if a need for an external perspective has been recognized. This was

confirmed by the Chief Engineer and the Talent Manager by stating;

“...We have implemented in house customized training schedules for all the employees despite the training organized by the headquarters branch. Since we follow ISO standards, it is compulsory to conduct training sessions for the staff. Therefore daily, monthly and annual training sessions will be conducted to make employees aware of ISO standards such as ISO 14001-standard for environmental management, ISO 50001 -standard for energy management systems and ISO 22001 standard for food safety certification. The progress of these training sessions will be evaluated regularly....”

The HR policy of the hotel ensures the highest standards of health and safety for all the associates and employees by educating and taking necessary health and safety precautions for all the employees. The human resource executive stated that;

“...All the employees are trained and educated to avoid potential accidents and injuries, wear proper health and safety equipment and uniforms when working with the machineries such as biomass boilers. The strict adherence to the JH health and safety policy is expected of every associate...”

Additionally, the hotel has taken various steps in assisting the local community and managing the supply chain. During the pilot visit, few beach vendors were seen in the hotel premises selling garments and ornaments for the locals and foreigners. The reason was explained by the Chief Engineer as follows;

“...We have given the opportunity for the local vendors to sell batik garments and other fancy ornaments to the guests within the hotel premises. But we have taken each and every step to make them understand about our Eco friendly and sustainability approach. Therefore, we do conduct regular awareness programs, train them and also provide them a specific uniform and an identity card to let the visitors know that they are approved vendors by the hotel. Furthermore, by allowing locals to sell garments in the premises, the guests will be aware of the fact that hotel do concern on the neighboring community...”

Furthermore, the hotel has provided job opportunities for the local three-wheel drivers. The Chief Engineer said,

“...We have provided job opportunities for local three-wheel drivers by eliminating the need for a third-party hotel taxi service. But we continuously inform drivers and guests about our green practices and encourage them not to bring plastics into the hotel premises...”

The hotel uses cinnamon wood as the fuel for the biomass boilers. Since the usage of fuel is considerably high, a separate community has emerged to facilitate with cinnamon woods. Even though using cinnamon wood is costly for the hotel the Engineer stated that;

“...We buy 1 kg of cinnamon wood at a cost of 9 rupees even though we can buy it at a cheaper price like 4 or 5 rupees. But we do concern about the community who depend on us. As we all know cinnamon cultivation

happens down south. Therefore, the transporting cost is high due to the considerable distance. In order to minimize this cost, we advise lorry drivers to take delivery orders on their way back to down south after delivering cinnamon woods to us. By using this strategy, we were able to minimize transportation costs considerably...”

Besides that, the hotel maintains a sustainable supply chain management throughout the hotel operations. The procurement in charge managers are well trained to obtain supplies from sustainable resources while concerning the financial and quality requirements, reducing carbon and water footprints in the process.

6. Discussion and Conclusion

The hotel follows some noteworthy Environmental Management Practices since the commencement. In the 1990s, in an era where environmental concerns were not viewed as a fashionable icon or a concern, the establishment of the first ever wastewater treatment plant in the JH hotel premises has not only paid off in terms of hotel JH's reputation but also set a great example for the neighboring hoteliers to adopt to sustainable waste and water management systems into its operations, this great initiative has stimulated the hotel to adopt more EMA initiatives in to its operations.

Another internal driver that propelled the hotel to adopt EMA practices is the introduction of the post of “Naturalist” for the first time in 2010. The findings of Hsieh (2012) have clearly highlighted that, the appointment of an in-charge person would be the most thoughtful commitment to

environmentally sustainable development from the top management. This finding of Hsieh (2012) is similar to the case study evidences gathered during the pilot visit as the Chief Engineer of the hotel JH mentioned that the establishment of the concept of “Naturalist” for the first time in 2010 was another turning point for the hotel to achieve the goal for a greener future. The high operating costs due to the major decline of profits during the period of civil war and tsunami can be considered as a key external driver that directs the hotel to embrace EMA practices. In order to survive in the industry, the hotel embraced the concept of EMA as a cost saving and revenue enhancing method. The research findings of Gunarathne and Lee (2015) and Nyide (2019) emphasized that the proper implementation of eco-friendly practices aids in profit increments due to the lowered cost of energy, water and waste management practices.

Owing to various renewable energy resources, the hotel JH has well identified the harmful impact of the high consumption of grid electricity due to its operational process. In general, the grid electricity is considered as the most commonly available primary energy source that fulfills the energy requirements of the hotel industry (Gunarathne and Fonseka, 2012). For instance, the present findings of this case study reveal that hotel JH saves up to 5 lakhs from its total operating costs in each month by transitioning to renewable energy sources and energy efficiency practices. The study of Herzig (2012) emphasizes that the hotel sector organizations are capable of achieving environmentally sustainable development

by introducing simplified energy efficiency, water conservation and waste management practices that are easy to implement at the initial stage and later expand to complicated processes such as bio-diversity protection, environmental partnership and seek certifications.

It is identified that the hotel pays greater attention in adopting various waste management systems to reduce wastage, encourage reuse and recycling of resources in every possible manner. Even the study of Ratnayake and Miththapala (2011) and Alwis, Archchige, Senevirathne Thiruvalluvar and Weerathne (2014) indicate that sorting and selling recyclable garbage would be financially advantageous to a hotel and investment cost of purchasing color coded garbage bins to sort these wastes should not be considered as an expenditure since it can be recovered within one of two years. The findings of the research on EMA practices and their diffusions based on Sri Lankan Enterprises has noticed that most of the hotels implement waste and waste water treatment due to the pressure from stakeholders (Gunarathne & Alahakoon, 2016). But the findings of this research are contradictory as this hotel has implemented the first ever effluent water treatment plant in the hotel premises in 1990, an era where EMA is not considered as significant among the hospitality sector. The hotel has implemented this water effluent plant without considering the huge cost and the burden of operating its complex process. The hotel has successfully reduced the GHG emissions linked with hotel operations by reducing grid electricity for the air conditioning system by introducing non fossil fuel energy generation such as solar

power, biogas, chill water systems and adapting energy conservation practices within the premises. These findings are accordance with results reported by Abeydeera and Karunasena (2019) as they strongly suggested the implementation of more energy-efficient air conditioning systems in hotel premises are likely to reduce electricity consumption and the carbon footprint despite the initial cost that has been incurred.

When referring to the sustainability strategy of the hotel, it is designed to promote a holistic framework of initiatives that focus on six key categories including energy and carbon, water and waste, biodiversity, community and culture, family and sourcing and production. The hotel continuously demonstrates sustainability efforts for the key impact areas of the business by proving the most commonly used sustainability definition of developing the organization as well as the environment together, whereas the development must be sustained within the limits of nature (Bebbington, 2001). The sustainability strategy of the hotel is intended to be designed with the consent of achieving the 17 Sustainable Development Goals set by the United Nation's with the aim of achieving a well-balanced economic, social and environmental future for the community as per the GRI G4 sustainability reporting guideline. Environmental awareness and responsibility are deeply rooted values in the hotel's ethos. Respecting the eco systems around the location, ecofriendly processes, production and responsible consumption of scarce resources are recognized as significant to the hotel. According to Hsieh (2012) an

organization that is committed to the environment, needs to have a clear environmental policy to achieve its environmental goals as well as to embrace environmental sustainability.

The Hotel JH has integrated many SDG goals into their strategic goals with the aim of supporting the global fight against poverty, to protect the planet and to ensure peace and prosperity around the globe by 2030. To raise awareness on the importance of SDG goals in the tourism industry, JH hotels organized Sri Lanka's first high level "JH UN SDG forum" in 2018 that speaks about how to mainstream all 17 United Nations Sustainable Development goals to build a stronger sustainable tourism industry in Sri Lanka. The relevance of JH hotel's sustainability initiatives to the United Nations Sustainable Development goals were highlighted throughout this forum. It is evident that the JH hotel's orientation towards sustainability has made their hotel to gain a competitive position in the market place and the hotel has gained many international and local recognitions as a brand that upholds the green visionary and sustainability as their main strategic imperative.

The overall case study findings revealed that the implementation of proper EMA reporting practices has significantly contributed to the internal decision-making process of the hotel which mostly contains physical information on material consumption, energy consumption, final disposal and monetary information on environmental related costs, savings and revenues. To accomplish the goal of ecological sustainability the hotel has launched several initiatives related to these EMA techniques according to the principles

of the GRI- G4 guideline such as transition to renewable energy sources, ensured carbon neutrality in the premises, effectively managed water and waste and engaged in biodiversity conservation and education. Thus far the hotel has taken many steps to sustainably recognize the significance of their relationships with employees and the local community to achieve the goal of social sustainability. The human resource division of the hotel has implemented a sound HR policy according to the social sustainability guidelines of GRI- G4 and continuously monitors the wellbeing of the employees by encouraging diversity, ensuring fair treatment, talent management, performance appraisals, recognition, learning and development etc. Thus far, the hotel continuously ensures to be in forefront in fulfilling the social responsibilities by contributing to community development and engaging in ethical business operations related to the social sustainability aspect of GRI G4 guideline.

The hotel JH is a perfect example to prove the linkage between EMA practices and the TBL, as the destinations that has invested in environmentally and social sustainable practices tend to achieve higher growth rates when compared to other organizations as most of the customers gain a greater satisfaction when hotels rely more on greener concepts and customer readiness to pay for greener hotels is considerably higher. It is evident that the implementation of environmental management systems has not only upgraded the brand name of the JH hotel but also improved employee and customer satisfaction, ensured compliance

with legal requirements, effective use of energy sources and aided in gaining a genuine interest in the environment. In a nutshell, EMA provides measurements for the effective and efficient implementation of sustainability management practices and a successful implementation of EMA techniques has propelled hotel JH to obtain environmental sustainability as well as social and economic dimensions in the triple bottom line.

In addressing the limitations of the study, the numerical data related to the economic sustainability dimension of the hotel could not be obtained during the period of study due to the Covid 19 global pandemic. Since the hotel was handed over to the military to convert into a quarantine center, a physical interview with the Accountant was not held. Therefore, permission was not given to collect economic sustainability related data over the phone due to the high confidentiality and competitiveness. Further, this study undergoes the most common drawback of conducting field-based case studies which is related to difficulty in generalizing the findings to the overall industry due to the contextual differences.

As further developments to this study, future researchers can investigate the contribution of EMA practices towards the TBL including the economic sustainability dimension. Thus far, future researchers might conduct comparative case studies that cover various industries or comparative studies within the same hospitality industry that investigates the link between EMA and sustainability.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

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