

Adoption of Green Practices in Hotel Industry in Sri Lanka: An Evaluation Based on the Green SL Rating System

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Abstract

Greening is no more a new concept to the industries due to unstoppable pressure that has been placing from government and non-government organizations to implement sustainable approaches throughout the business management procedures. Adopting green practices has become inevitable for hotel industry since customers have become sensitive when making purchasing decisions thereby giving priority for green hotels. The Green Building Council of Sri Lanka (GBCSL) has introduced Green SL rating system including eight categories to evaluate the green aspects that have to be followed by new buildings and existing buildings in order to go green. The objective of this research study was to evaluate the green aspects that are being adopted by the existing hotel buildings in Colombo City. Green aspects of star class hotels were evaluated by studying three hotels located in the city of Colombo. Structured interviews were conducted with green associates and hotel executives to address the challenges of implementing green practices in the hotel industry. Results of the evaluation revealed that adoption of green practices in existing buildings are at a lower level as per the GBCSL rating system. The findings of this research study revealed that city hotels have not been able to meet the criteria of Green SL rating system to a satisfactory level. Green practices have been adopted in hotels to maintain the indoor environmental quality in existing building. Higher cost involved in renovation, sensitivity to seasonality, lack of awareness of going green and lack of interest were identified as key challenges in greening hotels. The findings of this study suggest that successful implementation of green practices in hotel industry is primarily depends on management support, staff awareness and staff engagement.

Key words: Greening Hotels, Green Buildings, Sustainable Development, Responsible Tourism

INTRODUCTION

Recently, sustainable development has become a buzz word in all types of industries since reducing the negative environmental impact of business activities has identified as a source of competitive advantage for business. The concept of sustainability was first developed in 1987 with the release of the United Nations sponsored Brundtland Commission's "Our Common

Future” and the action plan for sustainability was introduced by the Agenda 21 of the Rio – Earth Summit Conference in 1992(Young & Earnest, 2008). Greening buildings has become flagship for sustainable management since it balances the long-term economic, environmental, social and health(Ali and Al Nsairat, 2009). Green Building is a holistic concept that begins with understanding that the built environment can have both positive and negative profound effects on the natural environment, as well as the people who inhabit in buildings. Green building is an effort to amplify the positive and mitigate the negative of these effects throughout the entire life cycle of a building(US Green Building Council, 2014).

Green buildings are identified as sustainable buildings and used as a tool for United Nations Sustainable Development Goals(World Green building council, 2016). The concept of green building is aligning with nine sustainable goals including good health and wellbeing, affordable and clean energy, decent work and economic growth Industry innovation and infrastructure, Sustainable cities and communities, Responsible consumption and production, Life on land and partnership for the Goals.

The First Green Building rating tool Building Research Establishment’s Environmental Assessment Method (BREEAM) was introduced to the world by United Kingdom in 1997 and United States Green Building Council (USGBC) introduced world famous Leadership in Environmental and Energy Design(LEED) green building assessment rating tool in year 2000 to assess the green building parameters. Green building rating tools or certification are used to assess and recognize buildings which meet certain green requirements or standards. Rating tools, often voluntary, recognize and reward companies and organizations those adopt, build and operate greener buildings, thereby encouraging and incentivizing them to push the boundaries on sustainability. They kick-start the market by setting standards that then in turn elevate the ambition of government building codes and regulation, workforce training, and corporate strategies (World Green building council, 2016).

Rating tools vary in their approach and can be applied to the planning and designing, construction, operation and maintenance, renovation, and eventual demolition phases of a green building. Rating tools can also differ in the type of buildings they are applied to, with specific tools or subsets of tools used for different building types such as homes, commercial buildings or even whole neighborhoods(World Green building council, 2016). Therefore, more than 70 countries make green rating tools for themselves to achieve sustainability for their building construction and operation sector.

As per the sustainable development definition sustainability focused on main three pillars such as Environmental, Social and Economic conditions and factors of these three pillars differ from country to country. Therefore, each country needs its own green rating tool to assess its buildings since the concept of green development addresses the environmental, social and economic factors and its impact on the same.

The Green building council of Sri Lanka (GBCSL) was established in 2009 as a nonprofit non-government organization similarly to the other Green building councils around the world. GBCSL has received the membership of World Green Building Council in year 2010. The Green^{SL®} Version one for new developments has been developed and published in 2010 and Green^{SL®} Version one for existing building has been developed in 2011. The assessment for the Sri Lankan Building under these two rating tools has been started in year 2012.

Hotel buildings are identified as commercial buildings which consumes higher sources of energy per guest. It is said that hospitality buildings have higher environmental impact since they operate 24 hours basis providing comfort for guests (Redl, 2013). Guests are expecting enhanced service and experience during their stay in a hotel. Making a value for money by reducing waste of resources is a challenge for hotel operators. Operating a commercial building such as an accommodation facility involves larger emission of Green House Gas (GHG) and as a result of higher energy consumption (Filimonau *et al.*, 2011). Ronning and Brekke present a diagram of all possible GHG emission those can be involved with operating a hotel. They identified that activities related to transportation of goods and people, production, and energy use are considered as equally important areas in GHG accounting (Rønning and Brekke, 2015).

Tourism has been identified as one of the major income sectors for Sri Lanka and which has a continuous growth in recent past. The annual tourist arrivals in 2012 just exceed 1 million. Tourism which forms 0.6% of the total Gross Domestic Product (GDP) of the country was one of the fastest growing sectors in the economy, growing by 39.8% in 2010. The government has set a target of receiving 4.5 million tourist arrivals by 2020.

Table 31: Monthly Tourist Arrivals in 2017 and 2018 Sri Lanka

Month	2017	2018	%Change 2017/2018
January	219,360	238,924	8.9
February	197,517	235,618	19.3
March	188,076	233,382	24.1
April	160,249	180,429	12.6
May	121,891	129,466	6.2
June	123,351	146,828	19.0
July	205,482	217,829	6.0
August	190,928	-	-
September	145,077	-	-
October	152,429	-	-
November	167,511	-	-
December	244,536	-	-
Total	2,116,407	-	-
Up to July	1,215,926	1,382,476	13.7

(Sri Lanka Tourism Development Authority, 2018)

The supply chain of tourism service providers includes lodging operators, restaurants, tour operators, transportation providers and many more. The concept of responsible tourism has stressed the facility providers in the tourism sector to achieve sustainable targets while reducing environmental impact which is a challenge for developing country like Sri Lanka. United Nations Environment Programme (UNEP) and the World Tourism Organization highlights that “green investment in tourism can contribute to economically viable and robust growth, decent work creation and poverty alleviation; while improving resource efficiency and minimizing

environmental degradation”(UNEP, 2011). The tourism has a higher environment impact due to higher level of greenhouse gas emission and the higher energy usage for providing facilities. UNEP highlights that tourism sector produce 5% of the global carbon emission and forecasted data reveals that it will be increased up to three times within thirty years.

Hotel industry is providing the core facility of accommodation to function the global tourism industry. Large amount of paper, food, energy, and other resources are regularly used in hotel operations(Jamaludin and Yusof, 2013).Managing environmental aspects in hotel industry has come to the discussion as a result of changes in customer perceptions. Since the number environmental sensitive customers have increased accommodation providers have been stressed to consider adopting environmental aspects in their properties. Simultaneously, economic impacts of going green have also been recognized as per the cost advantage of saving energy, water and solid waste management. Innovative adoptions of green aspects through daily managerial operations have a positive impact on environmental profile of local environment as well marketing advantage(González and León, 2001). This research study intends to evaluate the green aspects that are being adopted by the existing hotel buildings in Colombo City.Green^{SL}rating system of GBCSL was used as the overarching criteria for evaluation purpose.

LITERATURE REVIEW

The term “Green Building” is often brings images such as natural materials, green roofs, green walls and rooftops and high tech gadgets(Lucuik et al, 2005). Several criterions for greening buildings have been identified in the literature. The origin of Environmental Management in hospitality industry goes back to introduction of International Hotel Environmental Initiatives (IHEI) in 1993. That time common four areas were identified as water, energy, and waste and community service for greening hotels(Jamaludin and Yusof, 2013). These four areas are considered as basic areas for greening hotels. Environmental Management System (EMS) is also considered for management of organizations to deal with the aspects that impact on the environment. EMS was introduced in 1996, with ISO 14001 international standards including requirements for EMS(Chan, 2009). EMS considers the environmental impact of organizations by looking at the environmental policy, process that has impact of environment, objectives, monitoring progress and management review(Darnall and Edwards, 2006).

There are number of green rating systems widely used around the globe. Among those U.S. Green Building Council's LEED (Leadership in Environmental and Energy Design) , BREEAM (Building Research Establishment's Environmental Assessment Method), CASBEE (Comprehensive Assessment System for Building Environmental Efficiency) and Green Globes™ US are highly recognized for evaluating, designing and constructing existing buildings and new buildings(Fowler and Rauch, 2006). The United Kingdom's BREEAM evaluate building types including offices, homes, industrial units, retail units and schools under nine main categories containing Management, health and wellbeing, energy, transport, water, materials, land use, ecology and pollution(Chen and Chiu, 2005). CASBEE system which was developed in Japan assists in evaluating a building throughout its life-cycle: pre-design, new construction, existing buildings and renovation. Basically, CASBEE evaluates the building environmental quality and performance against the building environmental loadings. Quality and performance of buildings are evaluated by using three main categories including indoor environment, quality of services and outdoor environment on site. BEE (Building Environmental Efficiency) is calculated by dividing the building environment quality and performance by the building environment loadings including energy, resources and materials and off-site environment. Most of the green rating systems have been adopted or modified from the prevailing rating systems as per the industry updates and country requirements(Fowler and Rauch, 2006). LEED which was developed in 1998 in United States shares most of the above categories. Innovation and design process is a unique category for LEEDthat evaluate the sustainable and innovative design of buildings.

Table 32 Green Rating System and Evaluation Criteria

Green Rating System and evaluation criteria	Energy	Resources and materials	Off-site environment	Project Management	Site	Indoor Environment	Innovation and Design Process	Water Efficiency	Health & Wellbeing	Transport	Land Use	Pollution	Quality of services
LEED (Leadership in Environmental and Energy Design)	√	√	-	-	√	√	√	√	-	-	-	-	-
BREEAM (Building Research Establishment's Environmental Assessment Method)	√	√	√	√	-	-	-	√	√	√	√	√	-

CASBEE (Comprehensive Assessment System for Building Environmental Efficiency)	√	√	√	-	√	√	-	-	-	-	-	-	√
Green Globes™ US	√	√	-	√	√	√	-	√	-	-	-	-	-

(Source: Authors' own evaluation based on each criteria)

As it is illustrated in Table 2, commonly addressed evaluation categories are energy, resources and materials, site, indoor environment and water efficiency. Some rating systems are having unique categories such as quality of service, pollution, health and wellbeing and land use to optimize the building environmental performance. These categories are used as a guide when applying green concept in commercial and other types of buildings.

Larger hotel chains in Asia including Shangri-la Hotels & Resorts, the Mandarin Oriental, and Okura Hotels and Resorts Worldwide have been adopting green practices with the creation of the Asia-Pacific Hotels Environmental Initiative (HEI) in 1994 (Ernst & Young, 2008). The study of Ernst and Young further highlights how independent hotels in Asia have adopted green practices too. Among them, construction of green roof, wooden water storage tanks and water recycling plant are remaining prominent. LEED green certification which is categorized into Silver, Gold and Platinum has gained the attention of hospitality providers in United States for sustainable design in hospitality industry. A study of Leon found that guests have higher satisfaction on hotels those have obtained LEED certification in United States and Europe since those hotel rooms are having natural light and views which is a main criteria in LEED certification (Leon, 2014). MovenPick Hotel and Resorts in Kuwait has also been certified under the Green Globe for successfully adopting the green practices at the level of hotel and at the level of employees (Movenpick hotel and Resort, 2015). Asian governments have implemented separate government agencies in order to promote and assess green developments in hotels and other commercial buildings. Japan's Green Build Council and China's Hotel Association have developed their own criteria and action plans in order to develop green hotels in respective countries (Ernst & Young, 2008).

Kandalama Lake and Forest Reserve is one of the award winning green hotels in Sri Lanka. It has been identified as an eco-friendly hotel for acquiring sustainability in operations and all levels and functions. Their green policy implementation encapsulates environmental commitment and protecting employees' health and safety and improving community welfare. Kandalama hotel has been certified by LEED silver award and Green Globe 21 certified hotel

in Asia(Jamaludin and Yusof, 2013). Kandalama has successfully applied 3R policy in their property and recycled 100% of their waste and turned it into reusable resources(Anon., 2018). Cinnamon Lakeside hotel has also been awarded as the first Sri Lankan five star hotels to winning the Green Globe Certification and Cinnamon Bay Beruwala has also been awarded by the LEED Gold certification for its sustainable design and construction (Anon., 2018).

Previous studies discuss barriers for implementing green practices in hotel industry too. Greening a hotel is much more complicated since hotel industry which comes under the service industry cares perceived opulence, luxury and grandeur of their guests(Iwanowski and Rushmore, 1994). Literature stresses many other challenges including lack of information, varied structure of the industry, seasonality, high cost, lack of government regulations for the tourism industry and not enough pressure from customers for go green have identified as barriers for adopting green practices in the hotel industry(Graci and Dodds, 2008). To overcome such challenges literature proposes to adopt different initiatives suit their hotel operations(Jamaludin and Yusof, 2013). The hotel industry has to see the broader benefits of going green and corporate green characteristics into their operations so that they can improve the economic advantage of business.

METHODOLOGY

Qualitative approach has been employed in this research study. Three star class hotels in Colombo district were selected to evaluate the green aspects are in current practice. Documents were received from the Green building council of Sri Lanka in order to analyze hotel evaluation under the eight categories of Green^{SL} criteria. Structured interviews were conducted with green associates and hotel executives to address the challenges of implementing green practices in hotel industry.

DATA ANALYSIS, FINDINGS AND DISCUSSION

Current green practices of three hotels were evaluated as per the Green^{SL} rating system. Hotel evaluation documents obtained from the GBCSL were summarized in table 3 to table 10 including points received by each hotel for eight categories. Points are allocated according to the Green^{SL}rating tool.

Table 33: Management Category

Criteria	Essentials	Hotel A	Hotel B	Hotel C
Management (04 Points)	Building user guide	-	2	-
	Environmental Management	-	2	-
Points received		-	4	-

Management category evaluates availability of simple and easy building user guide including up to date information of the building such as access and safety, design of the building, energy efficiency measures, water saving measures, waste management and etc. Buildings have to maintain an environmental management plan including procedures to maintain minimum sound level, air pollution and waste management of the building which is aimed to reduce the impact on environment and maintain maximum indoor environmental quality. As it is shown in Table 3, only one city hotel has adopted the criteria in the management category.

Table 34: Sustainable Sites Category

Criteria	Essentials	Hotel A	Hotel B	Hotel C	
Sustainable sites (21 Points)	Green SL rated design and construction	-	-	-	
	Facility Management-building exterior and hardscape management	-	2	2	
	Facility Management-Outdoor Integrated Pest Management, erosion control and landscape management	-	2	2	
	Alternative transportation Low emitting and fuel efficient vehicles Parking capacity		-	1	-
			-	1	1
	Protect or restore open habitat	1	1	-	
	Storm water design, quantity control	2	2	-	
Storm water design, quality control	2	2	-		

	Heat island effect-Non-roof	2	2	2
	Heat island effect-roof	-	-	-
	Light pollution reduction	-	1	1
Points received		07	15	08

Green^{SL} rating system allocates twenty-one (21) points for second category which evaluates the efficient usage of land in terms of adopting brown fields without making harm to green fields. Hotel A and B have received higher points for controlling soil erosion and redeveloping brown fields to reduce the environmental impact of hotel buildings while creating an attractive garden for their visitors. Hotel B has received highest marks for the category of sustainable sites by providing in-house parking, easy access to transportation, reduced thermal effect and maintaining the outdoor environment without making harm to native species.

Table 35: Water Efficiency Category

Criteria	Essentials	Hotel A	Hotel B	Hotel C
Water Efficiency (16 Points)	Water performance measurement Measure total water consumption of the building Measure water usage of building subsystems	1	1	1
		1	1	1
	Water efficient landscaping Reduce potable water consumption Eliminate potable water consumption	2	-	-
		2	-	-
	Water efficiency in air-conditioning system	1	-	-
	Innovative wastewater technologies Reduce potable water use or treat waste water Harvested rainwater	2	-	-
		-	-	-
	Water use reduction	4	2	-
	Innovative water transmission	-	-	-
	Points received		13	4

Sixteen (16) points have been allocated for efficient usage of water and evaluates using alternatives for potable water and reducing usage of potable water in terms of landscaping, flushing purposes and air-conditioning. As per the evaluation criteria given in Table 5, hotel C only concerns about performance of water usage by installing sub-meters for each section in a hotel whereas, hotel A shows overall efficiency in all criterions other than innovative water transmission.

Table 36: Energy and Atmosphere Category

Criteria	Essentials	Hotel A	Hotel B	Hotel C
Energy & atmosphere (26 Points)	Optimize energy performance	-	5	-
	Renewable energy	1	-	-
	Existing building commissioning Investigation and analysis Implementation	1	1	1
		-	1	1
	Ongoing commissioning	2	2	2
	Ozone depletion	1	1	1
	Performance measurement-sub metering	-	1	-
	Performance measurement-building management system	-	-	-
	Green power	-	-	-
Points received		05	11	05

Energy and atmosphere has considered as the most important category in Green^{SL} rating system allocating twenty-six (26) points since it has been proved that 60% of total energy in Sri Lanka is consumed for building operation. None of the hotels in this study have achieved at least 50% of the points for this category. Hotel B has received five points for optimizing energy performance saving 25% of energy by using daylight, adopting innovative technologies for hotel operations such as key cards and replacing low performance fittings with high performance fittings. All three hotels have failed to adopt building management systems

including building automation.

Table 37: Material and Resources Category

Criteria	Essentials	Hotel A	Hotel B	Hotel C
Material and resources (10 Points)	Solid waste management-western stream audit	1	1	1
	Solid waste management-ongoing consumables	1	2	2
	Solid waste management-durable goods	-	2	2
	Solid waste management-facility alteration and additions	-	1	1
	Sustainable purchasing-ongoing consumables	-	2	-
	Sustainable purchasing -durable goods	-	1	-
	Sustainable purchasing-facility alteration and additions	-	1	-
Points received		2	10	06

Material and resources evaluates adaptation of 3R (Reduce, Reuse and Recycle) concept for waste management. Table 7 shows that Hotel B has successfully adopted waste management methods for ongoing consumable goods and for durable goods. It has reduced waste generation by adopting sustainable purchasing systems too.

Table 38: Indoor Environmental Quality Category

Criteria	Essentials	Hotel A	Hotel B	Hotel C
Indoor environmental quality (13 Points)	Outdoor air delivery monitoring	-	-	-
	Increased ventilation	1	-	1
	Low emitting materials for facility alterations and additions	-	1	-
	Green cleaning program	-	2	1
	Indoor integrated Pest Management	-	1	-
	Indoor chemical & pollutant source control	-	1	-

	Controllability of systems	-	1	1
	Lighting controls	1	1	1
	Comfort controls	-	1	1
	Thermal comfort monitoring	-	1	1
	Occupancy comfort survey	-	1	1
	Daylight and views	-	-	1
	Daylight	1	1	1
	Views	1	1	1
Points received		04	11	10

Indoor environmental quality evaluates the thermal comfort, visual comfort, acoustic comfort and human comfort of an existing building. Indoor environment quality is an essential parameter for building occupants since it has a higher impact on health, safety, efficiency and performance of occupants. Hotel A has ignored providing thermal comfort, indoor air quality and human comfort for the visitors whereas visual comfort has been considered. Hotel B and C have considered all the criteria in the category.

Table 39: Innovation in Operations Category

Criteria	Essentials	Hotel A	Hotel B	Hotel C
Innovation in operations (06 points)	Innovation in operation	-	-	-
	Exemplary performance	-	-	-
Points received		-	-	-

Innovation in operations considers to what extent building management adopts innovative methods, technologies and practices for reducing environmental harm done by the buildings. None of the evaluated hotels have considered the criteria in this category.

Table 40: Social and Cultural Category

Criteria	Essentials	Hotel A	Hotel B	Hotel C
Social and cultural (04 points)	Social wellbeing public health and safety	1	-	1
	Cultural identity	1	1	1
Points received		02	1	2

Social and cultural category evaluates how existing building have adapted to the governing rules and regulations and how building management contributes to protect the cultural identity. Hotel A and C have adopted 50% of the practices under this category.

Building user guide is a new concept for Sri Lanka. Building user guide illustrates buildings, its components and services that are been used by occupants and availability of opportunity for expansion of such components. Therefore, it is very essential for hotel industry since the occupants of hotel buildings are varied by time to time. Having a building user guide assists the management to maintain the services in the building too. One hotel out of three Colombo city hotels is having a building user guide and environmental management plan. However, it was identified that each hotel manages their buildings to provide maximum services to their visitors. Since these hotels have not adopted criterions in SL ratings they have failed to achieve sustainable parameters and that has created higher maintenance cost for the facility management.

Interviewees from hotel management highlighted that it has been a challenge for city hotels to maintain sustainable sites since they are located in the commercial hub. In case of city hotels in Colombo, they have limited land areas and higher cost of lands. Therefore, hotel management has been challenged to maximize the land use ensuring that they maintain a visitor friendly outdoor environment.

Efficient usage of potable water has been emphasized due to scarcity and the higher cost and higher carbon foot print involved in production of potable water. Green^{SL} rating evaluates how building management follows methods including rain water harvesting, reusing waste water by treating and adaptation of innovative technologies and sanitary fittings as alternatives for reducing demand for potable water. Only one city hotel from the sample has successfully adopted the criterions recommended by Green^{SL} rating systems. Hotel managers mentioned that

treatment of waste water is not required in Colombo city limits since Colombo City has a central system to dispose waste water. Furthermore, higher cost is involved in treating waste water, maintaining standards of treated water and reusing waste water and rain water at least for washing purposes.

Highest operational cost of a hotel is created from energy used for air-conditions, heaters, boilers, lighting, stores and kitchen operations. Therefore, managing energy under the criteria given in the Green^{SL} ratings system is an ideal to reduce the energy demand thereby reduced operational cost of facility management. Hotel management seemed to have low awareness on available practices, technologies and low energy used equipment those can be utilized for managing energy in hotel buildings.

As per the evaluation, two hotels have adopted successful waste management practices and indoor environmental quality practices in their properties. It was noticed that Hotel A has an effective present solid waste management system but has been failed to adopt practices to reduce future waste generation. Interviews with hotel management revealed that they have little awareness and fewer considerations on this regard. It was observed that variation of target group of hotels also have an impact on adopting green practices in hotel buildings. Hotel A which is a non-rated hotel is lagging behind of adopting indoor environmental quality methods comparing to the hotel B and C those are rated as star class hotels.

Last two categories evaluates to what extent existing building adopt innovative practices and cultural awareness. Cultural identity has been maintained by each hotel since it is vital for hotel industry to promote their business among both domestic and international visitors. It is observed that three selected hotels have not highly adopted the criteria mentioned in the Green^{SL} rating system.

CONCLUSION

As per the evaluations done based on the Green^{SL} rating system, it can be concluded that city hotels in Colombo city have given less attention for adopting green practices when operating hotel buildings. This research study revealed that city hotels have given priority for adopting indoor environmental quality methods which is highly required in hotel industry to meet the customer demands for comfort during their stay . Remaining criteria have received less attention from hotel management due to challenges involved in adopting sustainable practices. During the structured interviews it was revealed that main challenges of adopting green

criteria are less awareness or no awareness on Green^{SL} rating system and prevailing myths about green concepts. Higher initial cost involved in converting existing systems to green systems was also mentioned. Seasonality and customer sensitivity in the hotel industry, unawareness of benefits by adopting green SL practices such as reduced operational cost, increased perceived customer satisfaction and value of service were observed as challenges too. Management support, staff engagement and staff support were addressed as highly required for adopting green practices in any industry. In the point of green associates, Sri Lanka needs to give much more attention for promoting green criteria in order to enjoy large array of social, economic and environmental benefits of going green.

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