

The Impact of Green Certification to Hotel Green Practices: A Case Study on the Green Hotel Award in Macau

Jian Ming Luo¹ and Yulan Fan¹

¹ City University of Macau

Corresponding Author: Yulan Fan

Corresponding Author's E-mail: kenny.luo@connect.polyu.hk

Received: June 20, 2019

Accepted for publication: December 16, 2019

Published: December 30, 2019

Abstract

This study examined the implementation of green practices in award-winning hotels and the effect of the green certification towards the hotel green practices via qualitative semi-structured interview and content analysis. This study summarized that there are still significant differences in implementing green practices among different hotels. "Energy saving", "Saving water" and "Waste management" are the most popular activities of implementing green practices in award-winning hotels. Very few award-winning hotels implemented the activity of green practices, such as "Staff training", "Noise control", "Odor control", "Motivating green practices" and "Attending green activities". This study found that the green certification showed both positive and negative effects on hotels' green practices. The positive influence of the green certification on hotels' green practices is far greater than the negative influence. Therefore, to promote green practices, hotel managers could improve the efficiency of green practices based on the findings of this research.

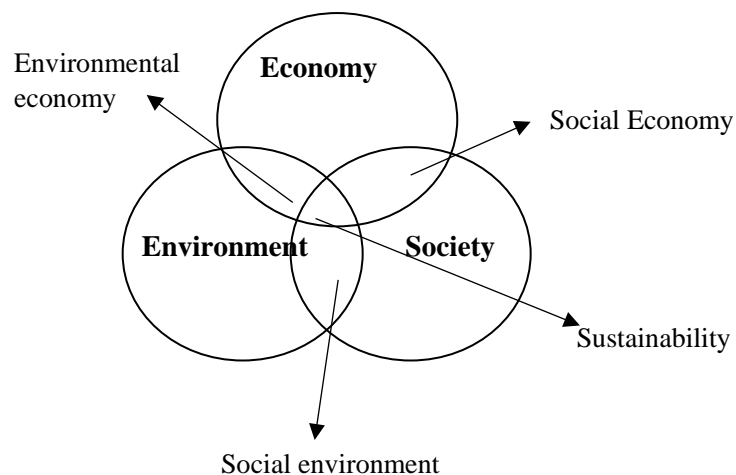
Keywords: Green certifications; green practices; sustainable development; Macau green hotel award.

1. Introduction

The hotel industry uses a large amount of non-renewable resources, such as, electricity, water, fuel, etc., due to its specific operating characteristic. According to Rada (1996), hotels have a greater negative impact on environment than other buildings with similar size. Manaktola and Jauhari (2007) also agreed that environment is the most important receiver of negative effects of hotel operations. As stated by Bohadanowice (2006), hotels belong to resource-intensive enterprises and the waste caused by hotels have significant impacts on the environment. As of Feb 2019, there are 120 hotels offering 40,145 hotel rooms in Macau. There are over 35 billion people visited Macau in 2018, which is impressive (Macau Tourism Data Plus, 2019). Macau is witnessing a high pressure on the environment due to tourism growth and the development of hospitality industry. Hence, recently, since rapid economic development damaged the natural resources of the world, sustainable development becomes increasingly crucial (Wang, Wu, Qiao & Song, 2018). The basic concepts and principles of sustainable development were initially determined from the 1960s to the 1990s. The publication of *Silent Spring* in 1962 opened a new era of ecological development and environmental protection.

The World Commission on Environment and Development published a report called *Our Common Future* in 1987. This report provided a formal definition of sustainable development, which is the development that does not only satisfy the current needs, but also not compromising the usage of resources of future generations (WCED,1987). In 1992, the United Nations Conference on Environmental and Development (UNCED) was hold in Rio de Janeiro of Brazil, 102 heads of states signed up *Agenda 21* and put forward that sustainable development consists of economic, social and ecological sustainable development. As Fig.1 showed, sustainable development includes three dimensions of development: sustainability of economic development, sustainability of social development and sustainability of ecological development. Sustainable development can be achieved by realizing the coordinated development of these three dimensions. (see Figure 1).

Figure 1. The theoretical framework of sustainable development



Macau's hospitality industry has advanced in sustainable development in recent years, but hotels continue to face difficulties in finding the most effective method to promote their green status (Peiro-Signes, Segarra-Ona, Verma, Mondejar-Jimenez, & Vargas-Vargas, 2014). Black and Crabtree (2007) argued that a formal certification, such as a third-party declaration, can be a useful approach to show the commitment of hotels to sustainability. The Macau Green Hotel Award, initiated by the Macau Environmental Protection Bureau in 2007, is one green certification to encourage green practices in hotel (King, Wan, Hup, Chan, Lan, & Huang, 2017). The Macau Green Hotel Award is a success. Over 70% of the hotels in Macau have developed and implemented one or several environmental protection strategies since the Award is established (Wang, Wu, Qiao, & Song, 2018). In general, hotels are keen to implement green practices for winning the Macau Green Hotel Award, which shows the Macau Green Hotel Award has brought some impacts to hotels' green practices.

Up to now few studies have focused on hotel managers' perceptions towards green certifications and its influences on hotels' green practices, which are noteworthy omissions, since managers important decision makers of the companies. This study supplements the gap in the research field and examines the impact of the Macau Green Hotel Award on hotels' green practices from the perspective of hotel managers. There are three objectives of this research, which are having a better understanding on the Macau Green Hotel Award based on hotel managers' perspectives, identifying the two-sided impact of the Macau Green Hotel Award on hotels' green practices, and providing recommendations and suggestions to hotel managers to improve hotels' green practices.

2. Literature review

2.1 Green certifications and the Macau Green Hotel Award

According to Zimmerman (2005), green certifications do not only identify the product or service achieve certain criteria, but also provide third-party quality assurance. Black and Crabtree (2007) believed that green certifications allow hotels to demonstrate their commitment and the status of their current practices, especially for those hotels which are pioneers in green practices. Strick and Fenich (2013) stated that there are many green certifications relevant to the hospitality industry, such as Audubon Green Leaf Eco-Rating Program, Green Key, Eco Grown Hospitality, Green Business Bureau, Green Globe International, Green Hotel Association and Green Label. As concluded by Geerts (2014), the green certification has three objectives in the hospitality industry: Firstly, green certifications can encourage hotels to provide green practices; Secondly, green certifications can improve hotel profit potentially; Finally, green certification is a recognition of hotels to potential customers.

The Macau Green Hotel Award (the Award) was developed in 2007. The purpose of this Award is to promote eco-friendly practices in the hospitality industry and support hotels' efforts in environmental protection (Environmental Protection Bureau, 2018). There are three main assessment criteria of the Award: Green Leadership and Innovation (GLI), Green Program and Performance (GPP), and Partner Synergy (PS), which are considered as three indices on the upper level (Wang, Wu, Qiao & Song, 2018). Hotels will gain a lot of benefits after winning the Award, such as reducing operating costs, enhancing the green image of hotels and increasing the visitors' recognition of the hotel. In addition, the award-winning hotel could get prepared for the latest environmental requirements and regulations published by the Macau government and contribute towards environmental protection work in Macau (Environmental Protection Bureau, 2018). Since the public becomes increasingly aware of the environment and pressure from the government, many hotels adopted certified green practices, such as the Macau Green Hotel Award (Segarra-Ona, Peiro-Signes, Verma, & Miret-Pastor, 2012). Therefore, more and more hotels in Macau start to implement green practices actively for winning the Award. The total number of award-winning hotels has increased to fifty-one by 2017, accounting for almost half of Macau's hotels.

2.2 Green practices in hotels

Green practices in hotels mean that hotels strive to eliminate negative environmental impacts by reducing resource consumption and recycling waste (Taleb, 2005). Yi, Li and Jai (2016) believed that the main purposes of hotels to implement green practices are not only to reduce the negative impact of hotels on the environment, but also to reduce operating costs caused by wasting of resources. Green practices can be broadly classified into three areas, conserving energy and water, and reducing waste (Liu & Sanhaji, 2010). The most common green practices in hotels include energy saving, saving water, waste management, transportation management (Eldemerdash & Mohamed, 2013). The above practices can be achieved by reusing towel and shampoo bottle, using water-conserving retrofits for showers, using cards that turn power to the room on and off, using compact fluorescents in guestrooms and in public spaces, and recycling paper and cardboard (American Hotel & Lodging Association, 2011).

According to Hsiao, Chuang, Kuo and Yu (2014), implementing green practices in hotel is an irreversible trend, which are able to keep balance between consumption and environment protection. Verma and Chandra (2016) also agreed that green practices have grown from an emerging trend to becoming a vast fixture within the hospitality industry. Ryan (2002) stated that hotels can not only increase profitability, but also become a source of social change and leadership through green practices. Withiam (2011) believed that the green practice is the top priority for all hotels worldwide. As concluded by Eldemerdash and Mohamed (2013), there are many benefits to implementing green practices in hotels. For example, green practice do not only show the commitment to environment, which develop trust, but also restore the natural beauty, which attract customers. In addition, green practice can reduce operating costs of hotels due to reducing energy and water waste. In recent years, green practices have been recognized and supported by many hotels because of benefits of green practices (Yi, Li & Jai, 2016). As stated by Chan (2008), the hospitality industry has both economic,

particularly to build a positive image, and environmental reasons to implement green practices. With the green movement in full swing, the hotel in Macau is making many changes in green practices to keep up with green certification standards (Strick & Fenich, 2013). Wang, Wu, Qiao and Song (2018) conducted a study to assess green practices of the hospitality industry in Macau. The results of their study show that the hotel in Macau has made important efforts to improve the green practice in recent years, but there is an apparent gap in green practices among different hotels.

2.3 The green certification influence on the green practice

According to Geerts (2014), the green certification has three objectives in the hospitality industry, one of the objective is that green certifications promote the implementation of green practices in hotels. Peiro-Signes, Segarra-Ona, Verma, Mondejar-Jimenez and Vargas-Vargas (2014) conducted a research in Spain to analysis how the green certification affect hotels from the customers' perspective. They founded that green certifications bring distinct market advantages to the hotel, so the hotel implements green practices actively. Perkowsky (2015) noted that achieving LEED certification gives hotels competitive advantages and USGBC's LEED certification promotes hotels to become green hotels actively. Gilmore, Fuller and Jo (2014) argued that IGBA standards could effectively address the unique challenges to implementing behavioral in the pursuit of environmental sustainability through performing a trial certification of one hotel.

The green certification also has important impacts on green practices of other industries and fields. González, Sarkis and Adenso-Díaz (2008) analyzed the difference in green practices between companies with and without any certified environmental management programs. They founded that companies with certified environmental programs were more demanding to their suppliers. As stated by Testa, Iraldo, Frey and Daddi (2012), public authorities certified by ISO14001 are more likely to develop GPP (green public procurement) practices according to the evidence from an Italian survey. Potoski and Prakash (2005) noted that many government and non-government agencies used green certification to encourage green practices in the industry. Their analysis of approximately 3700 US facilities shows that ISO14001 could increase the level of implementing green practices in facilities.

According to the literature review, there are only few articles explore the impact of green certifications on hotels' green practices, and many questions are unresolved. The research about the impact of the Macau Green Hotel Award on hotels' green practices in Macau has been little studied. Therefore, this study aimed to analyze the two-sided impact of the Macau Green Hotel Award on hotels' green practices from environment, society and economy these three dimensions, based on the theory of sustainable development.

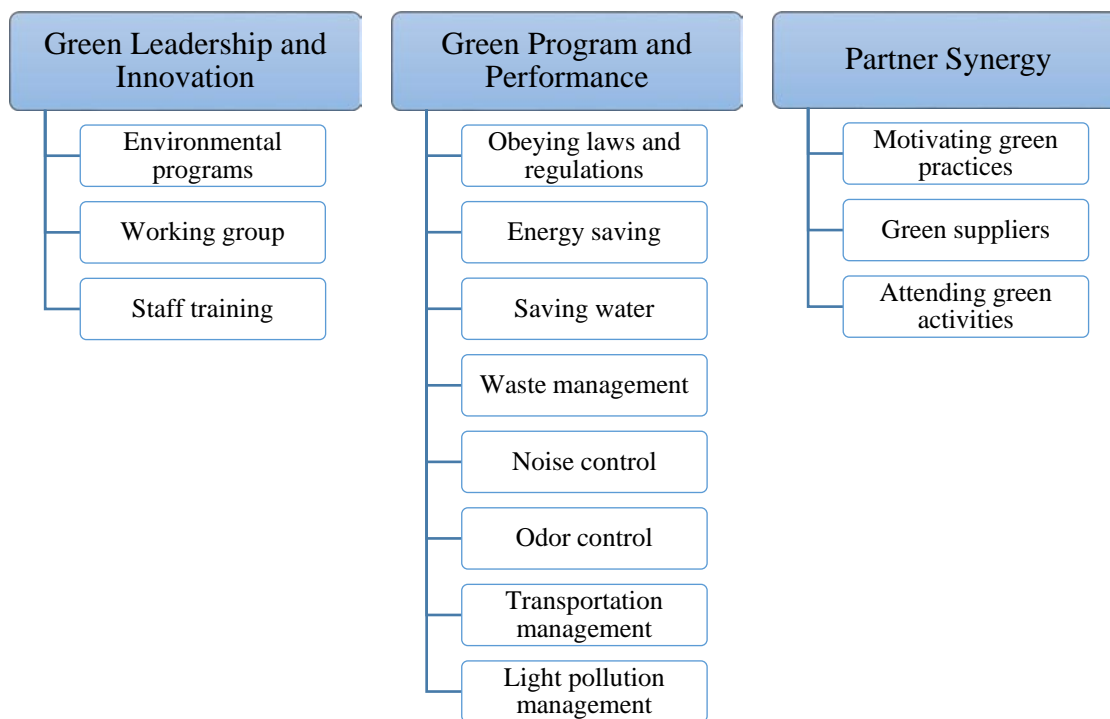
2.4 Framework of study

The green practice literature adopted various approaches to measure the green practice activities. Liu and Sanhaji (2010) addressed the green practice through three main components: energy conservation programs, waste reduction programs and water conservation programs. Enz and Siguaw (1999) developed three dimensions for the green practice through a content analysis of existing definitions. These dimensions included natural resource conservation, education, and community involvement. Radwan, Jones and Minoli (2010) proposed there were four main areas of green practices: energy efficiency, water conservation, managing solid waste, and recycling attempts. These might include linen-reuse programs, recycling paper, using energy efficient lamps in guestrooms and in public spaces, reusing towel, providing procedures to conserve energy, recycling cardboard, water-conserving retrofits for showers, recycling programs in administrative areas, and tracking energy and water consumption on a monthly basis (Radwan, Jones & Minoli, 2010).

Macau Green Hotel Award provided a relevant framework to assess the implementation of hotels' green practices including Green Leadership and Innovation (GLI), Green Program and Performance (GPP), and

Partner Synergy (PS) (Environmental Protection Bureau, 2018). The assessment criteria offered an international reference for all who were interested in the green practice. Similarly, Wang, Wu, Qiao and Song (2018) adopted Green Leadership and Innovation (GLI), Green Program and Performance (GPP), and Partner Synergy (PS) as three indices at the upper level. According to Wang, Wu, Qiao and Song’s framework of green practices and the Macau Green Hotel Award’s assessment criteria, we further divided the three areas into 14 classes of activities (see figure 2). We provided a framework to measure the implementation of hotels’ green practices in Macau. The themes and sub-themes of the implementation of hotels’ green practices were combined to develop a framework. Figure 2 indicates the main activities of hotels’ green practices in Macau. Environmental programs, working group, staff training, obeying laws and regulations, energy saving, saving water, waste management, noise control, odor control, transportation management, light pollution management, motivating green practices, green suppliers and attending green activities are the sub-themes belongs to Green Program and Performance (GPP), and Partner Synergy (PS) these three themes, which could measure the implementation of hotels’ green practices in Macau.

Figure 2. Framework of implementation of the hotel green practices in Macau



3 Research design

This qualitative research project is conducted in Macau and using case study as the primary research technique. It is appropriate for using this method because case study involves detailed and intensive analysis with a view to determining issues and making suggestions (Bryman & Bell, 2003). Tellis (1997) stated that by using case study method, researchers could access to details from the perspective of participants by utilizing multiple data sources. Thus, this study employed qualitative method by using semi-structured interview and content analysis. The theoretical framework for this study was adopted by the combination of the Macau Green Hotel Award’s assessment criteria and Wang, Wu, Qiao and Song’s green practice framework. Five personal interviews were conducted in April 2019. The selections of the samples were based on convenient samples and those managers

from each award-winning hotel are selected as the interviewees of this study. The sample interviewees are the director of human resources of Crowne Plaza Macau, the supervisor of the City of Dreams, the assistant vice president of Galaxy Macau, the supervisor of Sands Cotai Central and the supervisor of MGM Macau. Those participants mentioned before were interviewed face-to-face using an interview protocol. A Semi-structured questionnaire with open-ended questions was adopted in this study during the interview. The purpose of the semi-structured interview was to solicit views on how the Macau Green Hotel Award affects hotels' green practices from the perspective of hotels' managers. The questions in the questionnaire were developed from the literature review. There are two sections in the questionnaire. The first section collected information about the green practices implemented in hotels and the impacts of the Award bring on hotels' green practices, whereas the second section collected the demographic information of the interviewees. All questions were available in Chinese and English for the convenience of the interviewees. These questions included (1) Could you please introduce the green practices that your hotel has implemented? (2) What influences does the Macau Green Hotel Award bring to the operation of the hotel? Could you please make some examples? The main language used in the interviews were Chinese. The average length of the interviews is around 30 minutes. The transcripts were translate immediately afterwards using the the back-to-back technique. To collect the interview answers and ensure the validity of the content, the entire process was recorded. All interviews were sent to the interviewees for verification and approval (Mabuza, Govender, Ogunbanjo & Mash, 2014). After the interviews were recorded and transcribed, the corresponding information was input into QSR NVivo 12.0 (QSR International Pty Ltd, Melbourne, Australia) for further analysis. Qualitative data does not only explain the quantitative results, but also provide additional information, which may not be easily identified in quantitative research, to the interviewers.

In addition to semi-structured interviews, we made an internet search of each of the selected hotels' annual reports in 2018 from official websites. Data were mostly textural data from the hotels' annual reports. We looked into the annual report and see if there were any content about green certifications or green practices. According to Wang, Wu, Qiao and Song's framework of green practices and the Macau Green Hotel Award's evaluation criteria, we put the collected data into 3 categories with 14 classes of the green practice: "Green Leadership and Innovation", "Green Program and Performance", and "Partner Synergy". A qualitative approach was used to analyze hotels' annual reports through content analysis, using QSR NVivo 12.0. Content analysis has the advantages of allowing researchers to study the information without any influence from any theories and concepts and it allows open discussion despite the results (Jennings, 2001).

4 Results

4.1 Demographic of interviewees

The study used personal interviews to identify the implementation of hotels' green practices in Macau and summarize the effects of the Macau Green Hotel Award toward the hotel green practices. Five interviews were collected from hotels' managers with extensive work experience in the green practice. Four interviewees were male and only one interviewee is female. Of the respondents, all of them from the hotels that have won the Macau Green Hotel Award. The proportion of senior manager, manager and supervisors was 40%, 20% and 40%, respectively. Most respondents (60%) had more than 8 years of working experience in the hospitality industry, and most of them (80%) had more than 5 years of working experience in the field of the green practice. This sample should be a good representation of the view of managers in the hospitality industry and the field of green practice. The demographic information of the respondents was summarized in Table 1.

Table 1 Demographic information of interviewees

No.	Sex	Hotel name	Position	Working experience in hotels (Years)	Working experience in green practices (Years)
1	M	Crowne Plaza Macau	Senior manager	25	5
2	M	City of Dreams	Manager	10	5
3	M	Galaxy Macau	Senior manager	5	15
4	F	Sands Cotai Central	Supervisor	8	8
5	M	MGM Macau	Supervisor	2	2

4.2 Findings of interview

One question that was directed to interviewees was “Could you please introduce the green practices that your hotel has implemented?” This question identified the implementation of the hotel green practices. The implementation of green practices was categorized into 3 dimensions with 14 salient points according to Wang, Wu, Qiao and Song’s research and the evaluation criteria of the Macau Green Hotel Award. The findings of the interviews were presented in table 2.

Table 2 Implementation of green practices from interviews

Dimensions	Salient points/activities	Award-winning hotels				
		A	B	C	D	E
Green Leadership and Innovation (GLI)	GLI1: the preparation and implementation of environmental policies and environmental programs (environmental programs)					
	GLI2: the establishment of the environmental protection working group (working group)	√				√
	GLI3: encouragement of staff’s proposals on environmental programs, and training of energy conservation to staff members (staff training)					
Green Program and Performance (GPP)	GPP1: obeying environmental laws and regulations (obeying laws and regulations)				√	√
	GPP2: energy saving/reducing carbon auditing (energy saving)	√	√	√	√	√
	GPP3: saving water and controlling sewage (saving water)	√	√	√	√	√
	GPP4: waste management	√	√	√	√	√
	GPP5: noise control	√		√		
	GPP6: odor control		√	√		

	GPP7: transportation management			√
	GPP8: light pollution management	√	√	√
Partner Synergy (PS)	PS1: the reward to motivate guests to adopt green practices (motivating green practices)	√		√
	PS2: mechanisms for suppliers and contractors to adopt environmental strategies (green suppliers)			√
	PS3: participation in local activities of energy conservation (attending green activities)			

According to table 2, there were some similarities and differences in the implementation of green practices among A, B, C, D and E. The most popular activities of green practice were “Energy saving”, “Saving water” and “Waste management”. All of them did well in these three activities of the green practice. There were no hotel managers that provided green practices on “Environmental programs”, “Staff training” and “Attending green activities”. A, B and C had attended “Light pollution management”, while D and E had not. A and E had attended “Working group”, while other hotels had not. D and E had attended “Obeying laws and regulations”, while other hotels had not. A and C had attended “Noise control”, while other hotels had not. B and C had attended “Odor control”, while other hotels had not. A and D had attended “Motivating green practices”, while other hotels had not. Only C participated in “Transportation management”, while other hotels had not. Only D participated in “Green suppliers”, while other hotels had not.

Another question that was directed to interviewees was “What influences does the Macau Green Hotel Award bring to the operation of the hotel?” This question examined the effects and impacts of the green certification to the hotel green practices. The results of the interviewees were shown in Table 3.

The responses of this question could be classified into 1) Save resources, 2) Reduce pollution, 3) Strengthen environmental awareness, 4) Reduce costs of resource consumption, 5) Increase profitability, 6) Improve image, and 7) Improve the concentration on CSR, for the positive impact of the green certification to the hotel green practices, for the negative impact, the responses can be classified into 1) Increase costs of environmental protection facilities, 2) Waste of human resources, and 3) Increase workload of employees.

Table 3 Effects of the Macau Green Hotel Award toward the hotel green practices

Impacts	Dimensions	Salient points	Frequency
Positive	Environment	Save resources	5
		Reduce pollution	5
		Strengthen environmental awareness	2
	Economy	Reduce costs of resource consumption	2
		Increase profitability	2
	Society	Improve image	3
		Improve the concentration on CSR	1
Negative	Environment		
	Economy	Increase costs of environmental protection facilities	2
	Society	Waste of human resources	1
		Increase workload of employees	2

4.3 Findings of content analysis

Table 4 showed the results obtained from annual reports of IHG, Melco, GEG, Sands China Ltd and MGM in 2018, which are the companies of A, B, C, D and E respectively. The most popular activities of green practice were “Environmental programs”, “Energy saving”, and “Waste management”. All these five hotels implemented these three activities of the green practice. For “environmental programs”, the business of A developed several standards, policies and systems to provide a positive impact on the environment. The policies developed by company B can use the resources efficiently and minimize the impact to environment. C established a Corporate Procurement Policy in order to assist suppliers and internal stakeholders in selecting products and services that do not have harmful impacts on the environment. D designed the Sands ECO360 Global Sustainability program to help minimize the environmental impact. Company E commitments to three main pillars: Responsible Business, Social Responsibility and Environmental Sustainability. Regarding to “Energy saving” and “Waste management”, IHG (2018) showed: “Key to helping us reduce our environmental impact is our digital sustainability platform, the IHG Green Engage TM system. A global standard across the Group, it helps hotels manage and report their energy, carbon, water and waste use through more than 200 ‘Green Solutions’ and implementation plans, driving profitability for owners, whilst minimizing environmental impact” (p.24). Melco (2018) indicated that 100% of the electricity in B comes from renewable sources, B used a variety of methods to save energy, such as rolling out energy-efficient LED lighting for both exterior and interior illumination, installing photo-sensors in outdoor lights and staff lift lobbies, installing solar photovoltaic panels. In 2018, B started working on a plan to eliminate all problematic and unnecessary plastic items. In addition, B reused organic waste, reduced associated CO2 emissions and costs by composting. Similarly, Company C, GEG (2018) reported:

“GEG adopted energy reduction commitments in 2018, which include taking part in WWF’s ‘Earth Hour’ event for the 10th consecutive year and participated in the monthly ‘Lights Out’ Activity on the first Tuesday of every month (p.53)”. “GEG ensured that strict hazardous and non-hazardous waste collection and recycling guidelines are in place across all our properties in Hong Kong and Macau (p.54)”.

Sands China Ltd (2018) showed: “26.3million kWh of energy was saved in 2018 by installing LED and other energy efficient lights, and through optimization of cooling and heating systems (p.60)”. In addition, D also joined the World-Wide Fund for Nature (WWF) to launch WWF’s Earth Hour “Just One” Hotels Programme. Sands China Ltd (2018) indicated that “194 recycling points at the Sands China Ltd facilities are used for collection and separation of recycled materials (p.60)”. In 2018, D held two Zero Waste to Landfill Event. The aim of these events is to reach minimum 90% recycling rate as well as zero food waste, no plastic, sourcing food locally. Company E is committed to continuously develop new and innovative methods to reduce energy intensity. In additional, company E realized and understood the importance of waste management. MGM (2018) reported that “our energy consumption in 2018 was 215,666,0005 kilo watt hours, which included purchased electricity, liquefied petroleum gas, diesel and gasoline (p.78)”. The energy intensity of E from 2013 to 2018 showed a declining trend. By consuming the resources efficiently, the company hopes to reduce the amount waste used and hence the amount to be sent to the landfill and incineration. Company E adopted three main areas in waste management, reduce, reuse and recycle.

There were no hotels that implemented green practices on “Noise control”, “Odor control” and “Light pollution management”. “Saving water” and “green suppliers” are green practice activities that almost every hotel was involved, except for D. Regarding to “Saving water”, IHG (2018) showed: “Key to helping us reduce our environmental impact is our digital sustainability platform, the IHG Green Engage TM system. A global standard across the Group, it helps hotels manage and report their energy, carbon, water use and waste through more than 200 ‘Green Solutions’ and implementation plans, driving profitability for owners, whilst minimizing

environmental impact” (p.24). B has purchased the most updated equipment to conserve water. Similarly, company C showed the trend, GEG (2018) reported:

“GEG incorporated improvements in hotel guest rooms such as water fixture replacements, enhancement works for domestic hot water system and monitoring extension for the water management. The water fixture replacement for the hotel guest rooms have added in the water restrictor that instantly reduced the water flow rate, minimizing water consumption from hotel operations ultimately (p.54)”.

The energy intensity of E from 2013 to 2018 showed a declining trend, MGM (2018) showed:

“In 2018, we continued to conserve our water usage through our ongoing program of upgrading our fixtures and fittings (for example, shower heads and faucets) with low- flow alternatives, as well as adjusting our flow rates where possible. Throughout the year, we also continued to increase the scope of our water recycling program which serves to recycle the condensate from our air handling units, as well as the cooling tower bleed-off, to be reused for flushing (p.79)”.

For “Green suppliers”, company A makes sure their suppliers are aware of the environment. Company B regularly checked the environmental performance of their suppliers. Those suppliers who cannot meet the legal requirements will be suspended. Company C worked with its suppliers to select products and services that can control adverse environmental impact, prevent pollution, reduce waste and improve use efficiency of resources. Company E concerned about suppliers in order to ensure the long-term success of the sustainability.

“Working group” is a green practice activity that A, B and C attended, but D and E did not mention it in annual reports. A has a special committee to review and advise the Board on the Group’s corporate responsibility objectives and strategy, including its impact on the environment, social, community and human rights issues, its approach to sustainable development. B established the taskforce of the environmental, social and governance (ESG). C established an Environmental Committee and Energy Management Committee to govern the system policy and guidelines and to drive system implementation. C, D and E had participated in the green practice of “Staff training” activity of green practice, while A and B had not. GEG (2018) indicated that C organized a Certified Energy Manager (CEM) Training for the Facilities Management Team of the hotel and more than 20 team members achieved the CEM title certified by Association of Energy Engineers (AEE) in USA. Sands China Ltd (2018) noted that D established “International Strategic Leadership Programme for Integrated Resorts” for 26 of the company’s key executives from 24 departments. MGM (2018) reported that “we offered over 200 training courses and provided more than 917,000 training hours, an average of 85 hour per team member (p.58)”. Local leadership development, continuing education and professional skills and vocational training are three major categories of hotel E’s talent development programs.

“Obeying laws and regulations” is a green practice activity that both B, C and D attended, but A and E did not mention it in the annual report. Melco (2018) reported: “Compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste” (p.60). GEG (2018) showed that the environmental practice need to meet all relevant legal obligations and codes of practice. Sands China Ltd (2018) indicated that the rules and regulations required by the government have significant impact to the hotel. “Transportation management” and “Attending green activities” are green practice activities that B, D and E attended, but A and C did not mention it in annual reports. For “Transportation management”, Melco (2018) indicated: “In launching Macau’s largest fleet of twenty zero-emission electric buses in September 2018, we celebrated not only reducing greenhouse gas emissions, but also an improvement in air quality and the health of our staff and local communities” (p.55). Sands China Ltd (2018) reported: “All new buses being added across Sands China Ltd’s fleet are using Clean Energy, these will replace existing diesel buses” (p.60). MGM (2018) showed: “We installed four BMWi and four Tesla charging stations in the parking area of MGM COTAI for

guests to charge their electric vehicles-free of charge” (p.84). For “Attending green activities”, Melco (2018) showed: “Our resorts in Macau recently joined the ‘Clean the World’ Asia initiative, recycling slightly used soaps into as good as new soap bars that are donated to local and regional communities in need” (p.52). Sands China Ltd (2018) reported that 90 community activities were held in 2018, for example, team members took action nearly 125,000 times to reduce food waste during the Clean Plate Challenge Campaign. MGM (2018) mentioned that community engagement, inspiring the next generation, charitable contributions, contributing to local arts and culture, responsible gaming and anti-human trafficking, supporting local small and medium-sized businesses and advocator of national development are green activities that D had attended. “Motivating green practices” is a green practice activity that only E had attended, while other hotels had not mentioned it in the annual report. MGM (2018) mentioned that they motivate customers to adopt green practices through onsite customer care and interaction and social media.

Table 4 Implementation of green practices from award-winning hotels’ annual reports

Dimensions	Salient points/activities	Award-winning hotels				
		A	B	C	D	E
Green Leadership and Innovation (GLI)	GLI1: the preparation and implementation of environmental policies and environmental programs (environmental programs)	√	√	√	√	√
	GLI2: the establishment of the environmental protection working group (working group)	√	√	√		
	GLI3: encouragement of staff’s proposals on environmental programs, and training of energy conservation to staff members (staff training)			√	√	√
Green Program and Performance (GPP)	GPP1: obeying environmental laws and regulations (obeying laws and regulations)		√	√	√	
	GPP2: energy saving/reducing carbon auditing (energy saving)	√	√	√	√	√
	GPP3: saving water and controlling sewage(saving water)	√	√	√		√
	GPP4: waste management	√	√	√	√	√
	GPP5: noise control					
	GPP6: odor control					
	GPP7: transportation management		√		√	√
	GPP8: light pollution management					
Partner Synergy (PS)	PS1: the reward to motivate guests to adopt green practices (motivating green practices)					√
	PS2: mechanisms for suppliers and contractors to adopt environmental strategies (green suppliers)	√	√	√		√
	PS3: participation in local activities of energy conservation (attending green activities)		√		√	√

5 Discussion and conclusion

The study attempts to provide the implementation of green practices in award-winning hotels and the effect of the green certification towards the hotel green practices. Through comparing the findings of interview and content analysis, it shows that there are similarities and differences between the findings of two data sources. “Energy saving”, “Saving water” and “Waste management” these three activities of the green practice are consistent in the results of interviews and annual reports (See Table 1 and 3). According to (DSPA, 2012), all the 5-star hotels in Macau do installed water-saving showerheads to reduce water consumption, and 96.4% of hotels in Macau use energy-saving lightings. Almost every sample hotels did well in “Energy saving”, “Saving water” and “Waste management”. The interview and the annual report sources both show that there are few hotels to implement “Staff training”, “Noise control”, “Odor control”, “Motivating green practices” and “Attending green activities” these activities of green practices (See Table 1 and 3). As noted by Wang, Wu, Qiao and Song (2018), though it is very meaningful for hotels to provide training for their staffs to help them to accomplish their daily work in an energy-efficient manner, only 32.1% of hotels in Macau have such staff trainings. Most hotels in Macau did not have measures to encourage guests to adopt green practices, for example, few hotels encourage their guests to change bed linen and towels every other day by offering 50% discount coupons for buying a drink in hotels’ shops (DSPA, 2012). Wang, Wu, Qiao and Song (2018) stated that a large number of hotels in Macau are not active on attending green activities, only 35.7% of hotels participated in environmental protection activities, such as The Macau International Environmental Cooperation Forum & Exhibition (MIECF), the Macau Energy Conservation Week, the Soap Recycling Activity and the Used Clothes Recycling Program.

Through comparing the implementation of green practices among A, B, C, D and E, it reveals that there are still significant differences in green practices among different hotels. Combining the results of interviews and annual reports, it can be seen that B, C, D and E are better than A in the implementation of green practice. The reason might be related to the size of hotels. As stated by Wang, Wu, Qiao and Song (2018), high-star hotels do better in implementing green practices than low-star hotel, the likely reason is that high-star hotels have higher levels of management standards and a stronger environmental awareness. Mainly reflected in the following aspects: “Staff training”, “Obeying laws and regulations”, “Transportation management” and “Attending green activities” (See Table 1 and 3). For example, E offered over 200 training courses and provided more than 917,000 training hours, an average of 85 hour per team member (MGM, 2018). B obeyed the laws and regulations related to the environment, it launched twenty zero-emission electric buses and joined the “Clean the World” Asia initiative (Melco, 2018). C adopted IAQ management program, electric buses and car pool services (Galaxy, 2018). D held 90 community activities in 2018, for example, team members took action nearly 125,000 times to reduce food waste during the Clean Plate Challenge Campaign (Sands China Ltd, 2018).

This study further identifies the effects of the green certification toward the hotel green practices. It reflected that the green certification has a double-sided nature, which not only has a positive impact on hotels’ green practices, but also has a negative side. The results seemed that the positive influence of the green certification on hotels’ green practices is far greater than the negative influence. The positive impacts include save resources, reduce pollution, strengthen environmental awareness, reduce costs of resource consumption, increase profitability, improve image and improve the concentration on CSR. This was consistent with Geerts (2014) claiming that the green certification promotes the voluntary implementation of green practices in hotels, moreover, the award-winning hotels can be recognized by more customers because of the green certification which has the potential to enhance the profitability of award-winning hotels. The negative impacts include increase costs of environmental protection facilities, waste of human resources and increase workload of employees.

This study makes two important contributions. Firstly, from the green practice perspective, this study enhances the green practice literature by confirming the implementation of green practices in award-winning hotels and the effect of the green certification towards the hotel green practices. This study confirms that “Energy saving”, “Saving water” and “Waste management” are the most popular activities of implementing green practices in these five hotels. In addition, “Staff training”, “Noise control”, “Odor control”, “Motivating green practices” and “Attending green activities” are activities of green practices that have not been implemented by most hotels. Furthermore, this study also identifies the positive and negative effects of the green certification toward the hotel green practices. The positive impacts include save resources, reduce pollution, strengthen environmental awareness, reduce costs of resource consumption, increase profitability, improve image and improve the concentration on CSR. The negative impacts include increase costs of environmental protection facilities, waste of human resources and increase workload of employees.

Secondly, from hotel managers’ perspective, hotel managers can gain a deeper understanding of the importance of obtaining green certifications and implementing green practices from this research. The award-winning hotels have made significant efforts to implement green practices in recent years, but hotels that are unaware of their impact on the environment could still avoid their responsibility toward environmental protection (King, Y., Wan, P., Hup, S., Chan, J., Lan, H., & Huang, W., 2017). Therefore, there are still significant differences in green practices between different star-level hotels. According to the semi-structured interviews with hotel managers and the content analysis of hotel annual reports, the ignored activities can be found out in hotels during their green practice process, such as “Staff training”, “Noise control”, “Odor control”, “Motivating green practices” and “Attending green activities”. Therefore, hotel managers could strengthen “Staff training”, “Noise control”, “Odor control”, “Motivating green practices” and “Attending green activities” during green practices implementation in the future. The value of this study is that it will be useful to help hotel managers to take actions for improving the efficiency of green practices.

In conclusion, this study confirms that the implementation of green practices in award-winning hotels and the effect of the green certification towards the hotel green practices. This study summarized that there are still significant differences in implementing green practices between different hotels. “Energy saving”, “Saving water” and “Waste management” are the most popular activities of implementing green practices in award-winning hotels. Very few award-winning hotels implemented the activity of green practices, such as “Staff training”, “Noise control”, “Odor control”, “Motivating green practices” and “Attending green activities”. Furthermore, this study identifies the positive and negative effects of the green certification towards the hotel green practices. The positive impacts include save resources, reduce pollution, strengthen environmental awareness, reduce costs of resource consumption, increase profitability, improve image and improve the concentration on CSR. The negative impacts include increase costs of environmental protection facilities, waste of human resources and increase workload of employees.

6 Research limitations and future research

This study consists of four limitations that deserves further investigations. Firstly, this study is qualitative in nature, which is based on the semi-structure interviews and annual reports of hotels in 2018 only. Future studies could be required to use combination of qualitative and quantitative research methods. Secondly, the sample size of this study is only five. In addition, the interviewees are managers from hotels. Many stakeholders, such as customers, frontline employees and citizens are not included in this study. Impacts of the green certification on the hotel green practices might not be fully identified due to the limited data. Future studies could incorporate a large sample size with more diversity of stakeholders. Thirdly, this study is to explore the hotels that have won the Macau Green Hotel Award, so the results might not represent the impact of other green certifications on the hotel green practices. Future researches might explore the impact of other green

certifications, such as Green Key, Eco Grown Hospitality, Hotel Association and Green Label. Fourthly, this study is a preliminary research regarding the effects of the green certifications towards the hotel green practices. More in-depth analysis might be included, such as the direct and indirect impact of green certifications on hotel green practices, and the intervening variable plays a role between green certifications and hotel green practices.

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