GREEN TECHNOLOGY ACCOUNTING : HOSPITALITY INDUSTRY SUSTAINABILITY

Akuntansi Teknologi Hijau : Keberlanjutan Industri Perhotelan

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Abstract

This study aims to determine the application of green technology in the hotel industry in Bali Province from an internal and external perspective. This type of research is a multi case study. Data collection was carried out in 2022, through interviews from internal parties at Grand Hyatt Bali (five stars), Sheraton Bali (four stars), and Aston Inn Hotel (three stars); guests and the surrounding community from the third hotel, the Bali Provincial Environmental Service; observations and documentation. The results of this study indicate that three, four and five star hotels in Bali Province have implemented several green technology accounting activities. The third hotel has also incurred some costs in order to reduce pollution and the environment. From the external side, no party feels disadvantaged from the hotel's operational activities,
Keywords: Green technology accounting, environmental costs, hospitality industry

Abstrak

Penelitian ini bertujuan untuk mengetahui penerapan teknologi hijau pada industri perhotelan di Provinsi Bali dari perspektif internal dan eksternal. Jenis penelitian ini adalah studi multi kasus. Pengumpulan data dilakukan pada tahun 2022, melalui wawancara dari pihak internal di Grand Hyatt Bali (bintang lima), Sheraton Bali (bintang empat), dan Aston Inn Hotel (bintang tiga); tamu dan masyarakat sekitar dari hotel ketiga, Dinas Lingkungan Hidup Provinsi Bali; pengamatan dan dokumentasi. Hasil penelitian ini menunjukkan bahwa hotel bintang tiga, empat dan lima di Provinsi Bali telah menerapkan beberapa kegiatan akuntansi green technology. Hotel ketiga juga telah mengeluarkan sejumlah biaya untuk mengurangi polusi dan lingkungan. Dari sisi eksternal, tidak ada pihak yang merasa dirugikan dari kegiatan operasional hotel.
Kata kunci: Akuntansi teknologi hijau, biaya lingkungan, industri perhotelan

INTRODUCTION

The tourism industry is one of the fastest growing sectors, but inOn the other hand, this industry causes quite serious environmental problems (Buyukipekci, 2014). Pitriana (2008) states that along with the increase in the human population, of course, all human activities are carried out to fulfill their needs and survival. Including tourism as one of the fulfillment of spiritual needs. This certainly has a broad impact on the environment around human life, the impact that until now still has to be faced is the population explosion and environmental pollution. The more the population, the more damaged our environment will be.

As one of the cities that has an attraction for tourists, the Province of Bali has an increasing number of hotel rooms and tourists. Data from the Central Statistics Agency (BPS) of Bali Province states that the number of rooms in star, non-starred hotels and other accommodations in 2013 was 3,678 rooms, and in 2014 there were 4,079 rooms. Companies, governments and communities have an obligation to care more about environmental sustainability. As described Buyukipekci (2014) that companies are obliged to consider the economic and financial effects ofsocial activities in its activities, the company needs to make investmentsto protect the environment. In addition, companies need to prepare separate budgets to improve their technology in order to reduce the impact of damage that can occur due to waste from company activities.

Various environmental and social problems that occur as a result of services orthe products offered by the company, are often not in accordance with how the company is handling in preserving the environment. So the disclosure of CSR reports is one of the community's measures to assess which companies can be trusted and whose existence is acceptable. In addition to CSR reporting, environmental disclosures related to environmental costs are also being considered. The concept of environmental disclosure began to develop in the 1970s in Europe. The accounting system in which there are accounts related to environmental costs is called green technology accounting (Yoshi, 2011). Green technology accounting is used to measure and evaluate the impact of the production process (Magerholm, 1998).

Researchers conducted research in the hotel industry in Bali Province, which is the district that has the largest number of hotels in Bali.

Bali Province BPS data states that the number of hotels in Bali Province in 2020 is 166 hotels. The researcher adds an external perspective, to find out how the application of green technology accounting is seen from the side of people who directly get facilities and feel the impact of hotel industry activities, but do not participate in creating and implementing green technology accounting concepts. With an external perspective, the hotel's internal parties can get an evaluation to improve their performance for the better and care more about the environment. The purpose of this study was to determine the application of green technology accounting in three, four, and five star hotels.

Green technology accounting is a form of corporate responsibilityto the environment and social. Several theories that support the delivery of corporate social responsibility are legitimacy theory and stakeholder theory (Deegan, 2004). The meaning of green technology accounting in the Environmental Accounting Guidelines Japan (EAGJ) 2005 is a structure that is systematically used to identify, measure, and communicate the costs of conservation or environmental preservation and measure the economic benefits of environmental conservation. There are four basics of environmental accounting in EAGJ (2005), namely relevant, reliable, easy to understand and comparable. According to Erdoan (2007), there are four stages of implementing green technology accounting, namely the Environmental Protection Program, Solid Waste Management, Energy Purchasing and Use Activities and Resource Conservation.

A clean environment is a basic component of the quality of services provided and it is important for the development of the tourism, travel and hospitality industries (Erdogan & Baris, 2007). Therefore, it is important for the tourism, travel, and hotel industries to be more sensitive to the environment for the sake of business sustainability. Concern for the environment in the hotel industry continues to grow, 98% of the European hotel industry believes that hotel activities can have a negative impact on the environment (Bohdanowicz, Simanic & Martinac, 2005). Research conducted by Buyukipekci (2014) shows that five-star hotels in Konya City, Turkey are quite sensitive to sustainability issues. Four-star hotels have concerns with environmental issues, but have not been implemented in all aspects. Three-star hotels have no sensitivity to environmental issues and do not apply green technology accounting. Dahlia

(2016) shows that hotels in West Sumatra have not fully implemented green technology accounting in their financial reporting activities, but they already have activities related to environmental costs and overall hospitality in West Sumatra has applied environmentally friendly principles.

Bali Province as one of the districts with rapid development in terms of tourism, makes researchers want to know whether the hotel industry in Bali Province already has environmental concerns. In addition, previous studies that discussed the application of green technology accounting only discussed from the internal side, so the researchers wanted to know how to apply green technology accounting from the external side of hospitality. The purpose of this study was to determine the application of green technology accounting in three, four and five star hotels in Bali Province from an internal and external perspective.

METHODS

This research uses qualitative research because the researcher feels that the phenomenon being studied needs an in-depth understanding with the case study method. The case study method is a suitable strategy to answer research questions related towith how or how and why or why (Yin, 2009). Researchers made visits to hotels in Bali Province, direct surveys or direct observations of hotel activities in Bali Province, to find out how to apply green technology accounting to hotel operations. Interviews were conducted in depth and semi-structured. The researcher prepares questions related to the application of green technology accounting that has been adopted from Erdogan (2007), namely the Environmental Protection Program, Solid Waste Management, Energy Purchasing and Use Activities and Resource Conservation. The researcher provided a form related to environmental costs that referred to Hansen & Mowen (2005) which was then filled out by the hotel's internal party The criteria for this research subject include (1) the hospitality industry located in the province of Bali, (2) Is a three, four and five star hotel that including being registered by the Indonesian Hotel and Restaurant Association (PHRI) of Bali Province (3) Is a hotel registered by the Environmental Service (DLH) of Bali Province as a hotel that has an environmental permit, (4) It is a three, four, and five star hotel recommended by DLH, (5) Has a legal business entity. From these criteria, the subjects of this research are Grand Hyatt Bali (five stars), Sheraton Bali (four stars) and Aston Inn Hotel (three stars).

To find out the application of green technology accounting at the three hotels, the researcher made the criteria for the stages of applying green technology accounting based on Erdogan (2007) and environmental cost criteria based on Hansen & Mowen (2005).

Table 1. Criteria for the Application of Green Technology Accounting Stages

Criteria	The stages of application of green technology accounting Erdogan (2007): (1) hotel environmental protection programs, (2) solid waste management, (3) purchasing activities, (4) energy use and resource conservation	
No.	The number of activities carried out according to Erdoan (2007)	Conclusion
1	4	Very good
2	3	Good
3	1-2	Enough
4	0	Not enough

Based on the application of green technology accounting based on Erdoan (2007), researchers make indicators and assessment criteria which can be seen in Table 1. For the second indicator and criterion is from environmental cost activities based on Hansen & Mowen (2005) issued by hotels, these indicators can be seen in Table 2. In the second indicator, researchers do not see how much the nominal environmental costs incurred by the hotel,but from the number of activities related to the expenditure of these environmental costs.

Table 2. Environmental Cost Criteria

Criteria	Environmental Costs Hansen & Mowen (2005): a. environmental prevention costs (8 activities), b. environmental detection costs (6 activities), c. internal environmental failure costs (4 activities) and d. external failure cost environment (7 activities)	
No.	activities carried out according to Hansen &Mowen (2005)	Conclusion
1	16 – 21	Very good
2	10 – 16	Good
3	5 – 10	Enough
4	0 – 5	Not enough

RESULTS

The researcher requested data from the Bali Province PHRI, then continued with a request for approval from the Bali Province Bakesbangpol and the DLH. Data from DLH was obtained through initial interviews with the results that it was recommended that several hotels already have environmental permits, AMDAL, UKL UPL and have implemented environmental and waste management properly. Although all hotels in Bali already have environmental permits, not all hotels have implemented regulations related to environmental sustainability. Not all hotels use and study IPAL, so the waste generated reaches more than the threshold so that it cannot be called a green hotel. This is confirmed by the Ministry of Tourism (2015) that the Indonesian tourism industry is ranked 50th out of 141 countries.

This study involved three hotels located in the province of Bali, Indonesia, namely the Grand Hyatt Bali (five stars), Sheraton Bali (four stars), and Aston Inn Hotel (three stars). The hotel's internal respondents for this study consisted of five people with the positions of Chief Accountant, Administration Executive, Head of HRD, Assistant Engineer.

Treading the Footprint of Embodiment of Green Technology Accounting Hotel

Based on the information obtained from interviews, there are several explanations regarding the stages of applying green technology accounting for hotels according to Erdogan (2007).

Protection Program Hotel Environment

Elkington (1997) mentions that in the last few decades, public awareness of socio-economic and environmental issues has increased, so the current triple bottom line strategy is more considered. Mattera & Melgarejo (2012) also emphasized that the above strategy involves three main aspects: achieving sustainable profits, reducing the environmental footprint (planet) and balancing these goals by involving employees to the wider community. The three hotels that are the objects of this research are both implementing the 3R program, namely reuse, reduce and recycle and carry out other activities. Details of the hotel's environmental protection program activities are described in Table 3. Green Hotels in Malaysia also implement the 3R program, including using paper back and forth, refilling printer cartridges and soap in guest rooms,

Chen & Chen (2012) stated that hotels need more effort on employee training, employee recognition and cooperation. Supriadi (2016) stated that 75% of environmentally friendly hotels have a smoke-free policy, according to this the three hotels also prohibit employees from smoking during working hours, guests to smoke in the rooms and only allow guests to smoke in certain rooms. Chen & Chen (2012) also consider that consumers are parties who must understand how important it is to protect the environment. In addition to consumer cooperation, the effectiveness of the existing regulations related to the environment also depends on consumer acceptance and perception. The three objects of this research no one knows and appliesstandardISO 14001. This is also in accordance with the results of Erdoan's research (2007) that the knowledge of the hotel regarding the ISO 14001 environmental protection standard is very low, which is only 8 or 20% of hotels that have it.

Table 3. Activities of the Aston Inn Hotel, Sheraton Bali and Environmental Protection ProgramsGrand Hyatt Bali

No.	Environmental Program Activities Hotel		Aston Inn Hotel	Sheraton Bali	Grand Hyatt Bali
1	3R Program (Reuse, Reduce, Recycle)	a	use paper in the office back and forth	use paper in the office back and forth	use used towels for printing as a flower pot
		b	using used glass bottles to serve as simple lighting in the around the river	use used containers for trash and plant pots	make a bucketused chlorine as a trash can
		c	gathersecond hand goods are then sold for welfare employee	-	-
2	Other activities	a	-	utiliseoutdooris on the side of the hotel as a garden and grows vegetables and ground spices for kitchen	-
		b	create brochures and environmental protection notes to remind consumers to be more concerned about the environment, and prohibit consumers and employees from smoking in the area hotel		

Hotel Solid Waste Management

Solid waste management that can be done by the hotel includes waste separation. Bacot et al. (2002) revealed that hotel waste can be broadly classified as wet and dry waste. Wet waste consists of organic waste (food, garden and cooking oil waste), and dry waste is waste that can be recycled such as metal (cans), plastic, paper, linen and others. In accordance with the Regulation of the State Minister of the Environment No. 30 of 2009 there are several technical requirements that must be met as a location for waste collection. The draft of the Final Report for the Green GRDP Study (2018) states that the amount of waste in Bali Province which is very piled up has made the Bali Province Sanitation and Parks Service (DKP) want to reduce the volume of waste by processing the waste from the source. This can be done by sorting waste, providing B3 TPS, and implementing the 3R program. In detail, the solid waste management activities at the three hotels can be seen in Table 4.

Table 4. Solid Waste Management Activities for Aston Inn Hotel, Sheraton Bali and Grand Hyatt Bali

No.	Solid Waste Management Activities Hotel		Aston Inn Hotel	Sheraton Bali	Grand Hyatt Bali
1	Have TPS B3	a	locatedin an open space, close to the parking lot motorcycle	located in the basement of the hotel, close to car park	locatedin an open space, close to the parking lot motorcycle
		b	made of plywood, the roof is low and not there is a nameplate	made of plywood, the roof is quite high and there is a nameplate	made ofbrick,the roof is quite high and there is name plate

These three B3 TPS must always be managedand continuously improved by the three hotels, so that the separation of waste and waste becomes more optimal, so that the hotel participates in reducing environmental pollution.

Hotel Purchasing Activities

Singh et al. (2014) stated that hotels should pay special attention to the area of recycling small and light materials, such as plastic forks and spoons andstraw. Although these three materials have a small form, but with continuous use, it certainly produces an excessive amount of plastic waste. Therefore, hotels should start replacing the use of plastic spoons, forks and straws with non-disposable ones. Seuring (2001) stated that some sources believe the existence of purchasing policies is the key for hotels to measure environmental protection, so supply chain management is very important for hotels. The three hotels have not carried out an in-depth selection regarding concerns, environmental policies and CSR carried out by supply companies. In fact, Aston Inn Hotel still focuses on purchasing choices materials based on the available budget. Purchase activities of the three hotels can be seen at Table 5.

Table 5. Purchase Activities for Aston Inn Hotels, Sheraton Bali and Grand Hyatt Bali

No.	Activity Hotel Purchase		Aston Inn Hotel	Sheraton Bali	Grand Hyatt Bali
1	Plastic	a	only use white or clear plastic, unless for*trash bag*	minimize plastic withusegauze material for laundry bags	-
2	*Amenities*	a	bar soap	liquid soap	liquid soap

Yusof & Jamaludin (2013) revealed that the use of green products hasHotels in Malaysia, namely by buying recycled products and materials, buying local products, buying products from green vendors and using green chemical products.

Energy Use and Conservation of Hotel Resources

Hotel energy use depends on many factors in the building cycle, including the efficiency of the facilities designed, installation work and construction of the quality of existing facilities, i.e. whether the facilities have been tested and how well the facilities are before, during use and when maintained (Lai, 2016). Therefore, it is important for every hotel that is established to consider various building factors because they are related to energy use. If the hotel building is made densely without adding ventilation points or windows, of course the use of electrical energy for lights will be spent more, and vice versa.

Mattera & Melgarejo (2012) stated that the largest hotel companies thatgain a competitive advantage, willdare to take significant action to reduce energy use by using new technologies, using recycled materials and using their inputs from fair trade products. The water from the remaining pools of the three hotels is used to water the plants, as the five-star hotel in Konya does, which filters the pool water, then stores it and uses the water to water the garden (Buyukipekci, 2014). Supriadi (2016) also stated that 40% of hotels reuse bath water for watering plants. Details of energy use and resource conservation of the three hotels can be seen in Table 6. Lai (2016) states that facilities that are used lavishly or are left running even after the room or room is not occupied, the energy consumption becomeshigh regardless of the resources used for maintenance.

Environmental Cost

Identifying environmental costs will be complex because these costs are often hidden in overhead costs. The characteristics of environmental costs become important becausewhen these can be identified, they can be managed and become a source of future profits for the company (Jankovic & Krivacic, 2014). Aston Inn Hotel , Sheraton Bali , and Grand Hyatt Bali do not have green technology accounting reports, but do have environmental related costs. A detailed explanation of the environmental costs of each hotel as of December 31, 2017 can be seen in the following explanation.

Table 6. Energy Use and Resource Conservation Aston Inn Hotel, Sheraton Bali and Grand Hyatt Bali

No.	Energy Usage and Source ConservationHotel Power		Aston Inn Hotel	Sheraton Bali	Grand Hyatt Bali
1	Lights and electrical energy	a	LED	LED	LED
		b	Assign MOD or Manager On Duty	Assign MOD or Manager On Duty	use capacitor bank to control productive power to enlarge *power factor*
2	Water	a	water management with special treatment (used of certain drugs) and drain as much as two to three times a year	water management with special treatment (use of certain drugs) and drain as much as two to three times a year	water management with special treatment (use of certain drugs) and drain as much as two to three times a year

AnalysisApplication of Environmental Prevention Fee

Environmental prevention costs are costs for activities carried out to prevent the generation of waste and waste that can damage the environment. The grouping of environmental prevention costs based on hotel activities according to Hansen & Mowen (2005) existseight,but the three hotels applied were four. First, evaluating and selecting suppliers, in order to improve the beauty and cleanliness of the garden, the costs of procuring gardener services and procuring garden maintenance are included in this category by Aston Inn Hotel , Sheraton Bali , and Grand

Hyatt Bali . Second, evaluate and select tools for pollution control. Setiawan (2016) stated that the general activities carried out in the cost of environmental prevention are saving energy use, and replacing technology with more energy efficient ones. This is in accordance with the activities of the Aston Inn Hotel and Sheraton Bali, namely the procurement of energy-efficient electronic equipment and goods, namely the purchase of LED lights. Grand Hyatt Bali controls pollution by maintaining plumbing and kitchen equipment. Third, auditing environmental risks Aston Inn Hotel has conducted two fire simulation trainings in the past two years. Finally, environmental research, in an effort to protect the environment, Sheraton Bali carries out training on checking water content which is carried out regularly. A summary of the environmental prevention costs of the three hotels can be seen in Table 7.

Table 7. Implementation of Environmental Prevention Costs for Aston Inn Hotel, Sheraton Bali, and Grand Hyatt Bali

No.	Hansen & Mowen (2005) Cost Classification	Hotel	Hotel Environment Activities	Analysis of Accounting Treatment			
				Confession	Pengukuran (Rp)	Presentation	Disclosure
1	Evaluate and choose supplier	Aston	Procurement of handyman services garden	Gardener Load and Public Area	23,634,700	Departmental Load *Housekeeping*	*Expenses*
		Seraton	Procurement Services and *Carpenter*	*Miscellaneous Pm*	9,385,867	*Miscellaneous Pm*	*Payroll Pomec*
		Grand Hyatt	Maintenance park in area GRAND HYATT BALI Hotel	*Maintenance garden*	18,000,000	*Maintenance garden*	*Expenses*
2	Evaluate and choose tool for Control pollution	Aston	Purchase Goods Electronic	Burden *Engineering Supplies*	22,640,600	Burden Department *Engineering*	*Expenses*
		Seraton	Purchase Goods Electronic	*Electrical & Mechanical PM*	19,734,348	*Electrical & Mechanical PM*	*Expenses*
		Grand Hyatt Bali	*Cleaning Ducting*	*Maintenance Kitchen Equipment*	12.750.000	*Maintenance Kitchen Equipment*	*Expenses*
4	audit risk environment	Aston	Procurement Simulation Fire	Staff Load *Trainee and Development*	300,000	HR Expense	*Expenses*
5	Doing	Seraton	Checking	*Waste*	6,000,000	*Waste Removal*	*Expenses*

study environment	content water	*Removal*

Total cost Grand Hyatt Prevention	IDR 46,575,300,-
Total cost Seraton Prevention	Rp 35.120.215,-
Aston Total Cost of Prevention	IDR 30,750,000,

Environmental Detection Cost Application Analysis

Environmental detection costs are costs for activities to determine that products, processes and other activities in the company meet applicable environmental standards. The grouping of environmental detection costs according to Hansen & Mowen (2005) there are six,however, there are two that are implemented by Aston Inn Hotel and Grand Hyatt Bali. The first is to check products and processes to be environmentally friendly, Aston Inn Hotel regularly issues environmental hygiene fees for the local RT and RW environment. Pest inspection was carried out by Grand Hyatt Bali because the location of the hotel is surrounded by a small forest and there is a river behind the hotel, as was done by Grand Rocky Hotel Bukittinggi (Dahlia, 2016). Setiawan (2016) revealed that the activities in the environmental detection category carried out by 25 companies were integrated pest management strategies, protection of oil palm plantations, ISO 14000, and tissue culture research.

Second, carrying out pollution testing, Grand Hyatt Bali conducts inspections carried out by external parties. Not only ensuring water conditions, Aston Inn Hotel tooensure that the waste and air conditions of Aston Inn Hotel are good, the hotel continuously carries out inspections carried out by external parties. This is in accordance with Jankovic & Krivacic (2014) that the main purpose of implementing environmental management, and environmental impact measurement is to determine the possibility of reducing environmental impacts, as a form of compliance with regulations and obtaining other benefits. Sheraton Bali has no expenses related to environmental detection fees. A summary of environmental detection costs can be seen in Table 8.

Table 8. Application of Environmental Detection Fee for Aston Inn Hotel, Sheraton Bali, and Grand Hyatt Bali

.	Classification		Activity Environment	Analysis of Accounting Treatment			
1	Inspect productan d process agar	Aston	Dues For Environmental Hygiene	Donation Load	4,800,000	Burden General and Administrat ion	*Expenses*
	friendly environment	Grand Hyatt	InspectionPest	*Maintenan ce Pest Control*	6,500,000	*Maintenan ce Pest Control*	*Expenses*
2	Doingpollutio n testing	Aston	water inspection,waste and air	Legal burden/licens e/license	6,000,900	General and Administrat ive Expenses	*Expenses*
		Grand Hyatt	Water TestWaste	*Maintenan ceWaste Removal*	5,300,000	*Maintenan ceWaste Removal*	*Expenses*

Total Cost Aston Inn Hotel Total Detection Fee	Rp10.800.900,-
Total Cost Detection of Sheraton Bali	-
Total Cost Grand Hyatt Bali Total Detection Fee	Rp11,800,000,-

Implementation Analysis of Environmental Internal Failure Costs

Environmental internal failure costs are costs incurred as a result ofwaste and trash butnot discharged to the outside environment. The first environmental internal failure cost is managing and disposing of toxic waste. There are environmental costs that are not directly related to the environment, but these expenses occur because of waste or pollution, for example the cost of fines for not complying with legal requirements, and compensation for those who are harmed due to pollution (Jankovic & Krivacic, 2014). To avoid spending fines and compensation for the presence of waste and hotel waste, the treatment of waste must of course be carried out properly and correctly. Therefore, Sheraton Bali and Grand Hyatt Bali cooperate with third parties for the transportation of waste and waste.

Second, maintaining pollution equipment, in order to maintain the quality of the equipment used to manage pollution, Aston Inn Hotel and Sheraton Bali carry out maintenanceroutine sanitary equipment, pools, plumbing and heating. As did the Grand Rocky Hotel and Hotel Pusako Bukittinggi in Dahlia (2016). Third, recycling the remaining materials, the large number of used jugs produced from the use of various materials, makes Sheraton Bali reuse them so that these used jugs can be reused and turned into plant pots. All three hotels do not incur costs for internal environmental failures in the activity of obtaining a facility license to manufacture. A summary of the internal environmental failure costs of the three hotels can be seen in Table 9.

Table 9. Application of Internal Failure Costs for Aston Inn Hotel, Sheraton Bali, and Grand Hyatt Bali

No.	Hansen & Mowen (2005) Cost Classification	Hotel	Hotel Environment Activities	Analysis of Accounting Treatment			
1	Manage and dispose of waste poisonous	Sheraton	Cooperating with third parties for transportation waste	*Waste Removal*	9,000,000	*Waste Removal*	*Expenses*
		Grand Hyatt Bali	Wet Waste Disposal Compensation and dry	*Waste Removal*	9,600,000	*Waste Removal*	*Expenses*
2	Look afterpollution equipment	Aston	Routine Maintenance of Sanitary Equipment, Ponds, Plumbing and Heating	Pool Maintenance Expense	70,800,000	Pool Maintenance Expense	*Expenses*
		Sheraton	Equipment routine maintenance	*Plumbing, Heating*and *sanitary*	6,000,000	*Plumbing, Heating*and *sanitary*	*Expenses*
		Sheraton	Recycle Used Jurigen	*Painting*and *Decoration*	2,000,000	*Painting* and *Decoration*	*Expenses*
	Aston's Total Internal Failure Cost				IDR 70,800,000,-		
	Total Sheraton Internal Failure Cost				IDR 17,000,000,-		
	Grand Hyatt Bali's Total Internal Failure Cost				Rp 9,600,000,-		

Application Analysis of Environmental External Failure Costs

External environmental failure costs are costs for activities carried out after releasing waste and waste into the external environment. The first cost application is cleaning up spilled oil, Sheraton Bali is cleaning up oilused in the kitchen using cloth. Second, to restore the soil to its natural state, in order to maintain the land in the Aston Inn Hotel, especially the land used for gardens, the hotel fertilizes regularly. This is in accordance with Setiawan (2016) who revealed that the costs of external failure carried out by the majority of companies are planting trees, providing clean water, managing city parks, and maintaining soil fertility. The three hotels do not incur costs for internal environmental failures on activities to clean polluted lakes, clean polluted soil, settle personal accident claims, lost sales due to poor environmental reputation, and use fuel, electricity efficiently. Grand Hyatt Bali has no environmental detection costs.

Table 10. Application of Environmental External Failure Costs Aston Inn Hotel , Sheraton, andGrand Hyatt Bali

No.	Hansen & Mowen (2005) Cost Classification	Hotel	Hotel Environment Activities	Analysis of Accounting Treatment			
1	Cleanspilled oil	Sheraton	*Cleaning* userag	*Kitchen Equipment*	900,000	*Kitchen Equipment*	*Expenses*
2	Restoringground to state naturally	Aston	Soil Maintenance (Garden)	Fertilizations oil and plants	6.750.000	Burden *Public Area*	*Expenses*

The existence of the four environmental costs applied by the hotel can provide added value for business sustainability and environmental sustainability. Gunawan (2012) states that environmental costs for companies can help management take policies on continuous improvement of product quality and value and canidentify sources of waste and waste that have been disrupting productivity. The researcher makes a report on environmental costs based on the cost data that has been described previously, and compares it with the total operational costs incurred by the hotel in 2017 so that it can be seen what percentage of environmental costs incurred by the hotel. The total operational costs of Aston Inn Hotel were not disclosed to the researcher, so it cannot be compared how much environmental costs incurred by Aston Inn Hotel with the total operational costs. The environmental cost reports for Aston Inn Hotel, Sheraton, and Grand Hyatt Bali can be seen in Table 11.

Green technology Hotel Accounting Footprint: External Speak

To obtain information related to the application of green technology accounting and environmental activities from an external perspective, the researcher conducted interviews with guests, the publicaround and DLH. Green products according to Supriadi (2016) are not only products with a lower environmental impact but also those that provide greater environmental benefits than conventional benefits. By carrying out environmental care activities, the environmental benefits will be felt by the hotel's internal and external parties. Hotels get more marks because they not only talk a lot but also have real action. Umawan & Putri (2017) also stated that there are programs that involve the environment and the surrounding community can improve reputation hotel.

Table 11. Environmental Cost Report for Aston Inn Hotel, Sheraton Bali and Grand Hyatt Bali

Environmental Cost Report For the Year Ended December 31, 2022			
	Environmental Cost Aston Inn Hotel	Environmental Cost Sheraton Bali	Environmental Cost Grand Hyatt Bali
Environmental Prevention Cost	46,575,300	35,120,215	30.75 million
% of operating costs	xx	1.22%	0.07%
Environmental Detection Fee	10,800,900	0	11,800,000
% of operating costs	xx	0.00%	0.41%
Environmental Internal Failure Costs	70,800,000	17,000,000	9,600,000
% of operating costs	xx	0.59%	0.33%
Cost Failure ExternalEnvironment	6.750.000	900,000	0
% of operating costs	xx	0.03%	0.00%
Total Hotel Operational Cost	xxx	2,883,841,519	41,300,113,558

Perspective from Hotel Guests

Researchers getdata from ten guests from the three hotels. Aston Inn Hotel three people, namely Mr. Eko, Mr. Saleh and Mr. Wisnu. Sheraton Bali three people, namely Mr. Arizal, Mrs. Yanti and Mrs. Theresia. Grand Hyatt Bali as many as four people namely Mrs. Rian, Mrs. Eni, Mrs. Fipi and Mrs. Melisa. Mr. Saleh and Mr. Eko feel that Aston Inn Hotel cares about and preserves the environment because of its calm, clean atmosphere and lots of greenery. Mr. Wisnu also stated that Aston Inn Hotel already has environmentally friendly procedures, because there are signs or signs related to saving energy for the use of towels and linens. Procurement of more "green" facilities and infrastructure by hotels is one form of green marketing or what is called green marketing. Green Marketing according to Grant (2007) is a marketing and production process of goods and services that prioritizes environmental friendliness. Green marketing is a reaction from the company in meeting market demands that are more environmentally friendly.

Mrs. Yanti and Mrs. Theresia chose Sheraton Bali stating that Sheraton Bali is quite environmentally friendly. Mr. Arizal felt quite comfortable because the atmosphere was quite cool, beautiful, there was a fish pond and shower. Mrs. Theresia also believes that Sheraton Bali has involved guests to preserve the environment, namely by having a reminder board to maintain cleanliness and so on. The better the green marketing strategy implemented by the hotel, the number of guests staying will increaseincreased, therefore the hotel should be more sensitive to the environment. Panungkelan, Tumbel & Tawas (2018) stated that the role of green marketing strategy influence the decision to stay at the Swiss Bell Hotel Maleosan Manado. This is also in accordance with Naik & Piersma (2002) that reducing pollution, saving energy and good waste management will create motivationconsumers to come.

Mrs. Fipi has stayed at Grand Hyatt Bali four times, she stated that the facilities offered by Grand Hyatt Bali are complete, namely there is a fitness and swimming pool. Mrs. Fipi wants Grand Hyatt Bali to be able to provide innovations related to garden and swimming pool arrangements, besides that the playground for children should be free of charge. Mrs. Fipi gave advice regarding the availability of trash bins, it is better for Grand Hyatt Bali to increase the number of trash bins, both wet and dry, especially trash bins for baby diapers. Mrs. Eni feels that Grand Hyatt Bali is quite environmentally friendly, because many trees have been planted around the hotel, so it looks beautiful and green, buthe doesn't see any suggestions to save electricity or care about the environment. The hotel should pay more attention to the recommendations for environmental friendliness given to guests, pay more attention to the facilities and infrastructure offered with environmentally friendly concepts.

Han, Hsu & Sheu (2010) stated that in order to increase customerWhen visiting hotels, managers need to pay attention to positive activities and improve communication to provide an understanding that by staying at hotels that care about the environment, they have participated in protecting the environment, they can also eat and sleep in a healthy environment. Therefore, although not all hotels in Indonesia are certified as green hotels, hotels should be more sensitive to the concept of being environmentally friendly. If the hotel cares about the environment, automatically the hotel can also be assessed as a hotel that cares about its guests. If hotels don't start to care, the risks in the long run are even greater.

Perspective from Hotel Society

Researchers get data from eight people who live around the three hotels. From Aston Inn Hotel there is one person, namely Mr. Alfa. Sheraton Bali four people namelyMrs. Sunarti, Mrs. Rasmi, Mrs. Sulika and Mr. Hanif. Grand Hyatt Bali as many as two people namely Laras and Mrs. Wasis. Alfa stated that the surrounding community did not feel disadvantaged from the operational activities of the Aston Inn Hotel, because garbage and hotel waste were not scattered or left unmanaged. Alfa also confirmed that the hotel has participated in every activity carried out by the community, both routine meetings and cleaning the environment. Sheraton Bali has also held community service to clean the area around the hotel by involving the surrounding community, this is confirmed by Mr. Hanif. Mrs. Rasmi stated that Sheraton Bali has paid enough attention to the community. Sumual (2014) stated that hotels in Bali have also carried out environmental cleaning activities with the community.

Expected thingthe local community told Sheraton Bali that they could further improve the green area and immediately build a park near the hotel as promised at the beginning of the construction. The construction of the park will have a positive effect on the hotel, namely that it looks more beautiful or not arid, the surrounding community can also use the park to rest and a place to play for the family. Supriadi (2016) stated that 80% of hotels have a beautiful garden, this green park serves to clean the air around the hotel. Mrs. Rasmi and Mrs. Salika hope that Sheraton Bali will also involve the community in various positive activities, such as counseling or training. This is in accordance with Umawan & Putri (2017) which states that The Westin Hotel has carried out social responsibility from the social aspect of society, the hotel has built a harmonious relationship with the related community and provided voluntary assistance (charity). This is a form of the company's commitment to support the improvement of the social welfare of the community around the hotel.

Mrs. Wasis, one of the residents who lives near the Grand Hyatt Bali several times saw a garbage car, she believed that the garbage and waste from the hotel did not disturb the community. In addition Laras, who has lived in the Riverside housing estate since 2003 (before the Grand Hyatt Bali was built) is not bothered by the activities and waste from the hotel. It's just that sometimes Laras feels disturbed by the hotel event being helduntil the night, becausenoisy voice. Laras considers that Grand Hyatt Bali is already environmentally friendly.

Perspective from the Department of the Environment

Mr. Buddie from DLH said that the existence of a hotel in the province of Bali actually increases the attractiveness and beauty of the city, but the existence of the hotel causes the amount of ground water to decrease, and pollution if the hotel does not manage its waste properly. Hotels in Bali Province are required to submit semester reports related to the environment to DLH. This report is used by DLH as an evaluation related to hotel operations from the aspect of conservation, management, and utilization of ground water and so on. Concern for the environment must be carried out by all parties, because the Province of Bali has experienced several degradations in environmental quality, such as water. From the Draft Green GRDP Study Final Report (2018), it is stated that 14 sample points of river water are below 6mg/L (not at class I quality standards), it can be said that the quality of river water in the province of Bali is indicated to have been polluted. In addition, the amount of garbage heaped every day in the Province of Bali is 450,234 kg/day or a volume of 4,281 m3 but 1,111 m3 of waste cannot be managed.

Not only hotels that have to care about environmental sustainability, but everyonetype of business, both private and publicBUMN, including the community, must also take part in it. Mr. Buddie hopes that the hotel can always maintain the cleanliness and preservation of the surrounding environment, so that guests and the public feel comfortable and get used to being more caring. It will be an added value if the hotel participates in involving the surrounding community and maximizing the existing local wealth to run its business. So that all parties work together to create a clean, healthy and safe environment for the current generation as well as future generations.

CONCLUSION

Based on the discussion of the results of the analysis of the application of green technology accounting at three, four, and five star hotels in Bali Province, along with the indicators and criteria for the stages of implementing green technology accounting which can be seen in Table 1. Researchers can conclude that Aston Inn Hotel, Sheraton Bali and Grand Hyatt Bali has carried out the four stages of implementing green technology accounting activities according to Erdoan (2007), so that the three hotels canconcluded that it has implemented green technology accounting very well.

The second indicator and criterion is environmental costs. According to Hansen & Mowen (2005), researchers do not compare these criteria based on the amount of costs incurred by the company, but based on the number of activities on environmental costs. The total environmental cost activity is 21. The assessment based on the number of costs is not the same between one hotel and another because it is adjusted to policies, conditions, situations and locationsowned by the hotel. The details and the second indicator can be seen in Table 2.

In the second indicator and criterion, the researcher can conclude that Aston Inn Hotel has carried out three environmental prevention cost activities, two environmental detection cost activities, one environmental internal failure cost activity and one external failure cost activity, so that the total environmental cost activities incurred by Aston Inn HotelThere are seven activities, so that the implementation of Aston Inn Hotel's green accounting in terms of environmental costs is sufficient. Sheraton Bali has carried out three environmental prevention cost activities, three internal environmental failure cost activities and one external failure cost activity, so that the total environmental cost activities incurred by Sheraton Bali are seven activities, so that the implementation of Sheraton Bali's green accounting from an environmental cost perspective is sufficient. . Grand Hyatt Bali has carried out two environmental prevention cost activities, two environmental detection cost activities, one environmental internal failure cost activity, so that the total environmental cost activities incurred by Grand Hyatt Bali are six activities, so that the implementation of Grand Hyatt Bali's green accounting in terms of environmental costs is sufficient.

The three hotels care about the environment and incur certain environmental costs such as waste management costs, purchase and maintenance costs in order to save energy use and use environmentally friendly materials. The environmental costs incurred by the three hotels are not the same because there aredifferent activities carried out by each hotel. These activities are adjusted to the conditions, situations and locations owned by the hotel. The existence of these environmental costs can be used as a hotel evaluation material in the future, so that the implementation of environmental protection can be maximized.

From the external side, the hotel has sufficiently included guests and the surrounding community. There were no guests or the public who were disappointed with the hotel's treatment of the waste generated. In addition, Aston Inn Hotel and Grand Hyatt Bali have also involved guests and the surrounding community by carrying out environmental cleaning. The three hotels in this study have made certain posters or notices regarding an appeal to be more caring and environmentally friendly, and smoking is prohibited in the hotel area.

Although still simple, the three hotels also have TPS B3 and have implemented *reuse, reduce*, and recycle.

This study has several limitations, among which the object of this research is only three hotels due to limited recommendations from DLH and confirmation fromhotels, not all hotels allow researchersto interview hotel guests directly, namely Sheraton Bali and Aston Inn Hotel . Therefore, researchers can only get data from the results of filling out the question form for hotel guests who are entrusted to the receptionist. For further research, it should be done at hotels that can allow researchers to interview hotel guests directly and have permission to get reports related to environmental costs, so that researchers can not only obtain written forms, but also original recordings and documentation so that research results become more accurate. accurate. Further researchers can develop other instruments related to green technology accounting, such as an environmental cost information system, then increase the number of hotels studied so that they get better data accuracy.

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