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AN ANALYSIS OF SUSTAINABLE OPERATING PRACTICES IN MIAMI, FLORIDA HOTELS AND RESORTS

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This research study seeks to identify trends in the application of operating practices that result in the reduction and conservation of water, energy and waste output by thirty six hotels and resort facilities in the tropical climate of Miami, Florida, U.S.A. This paper addresses stakeholder issues that pressure hotels in the U.S.A. to fully engage in sustainable operating practices to include the meeting and conventions market requirements for evidence of sustainable operating practices. This study seeks to identify a profile of the operating activities of sustainably operated hotels and resort lodging properties in the area surrounding Miami, Florida based on lodging subgroup classifications.

Keywords: *sustainable operating practices, stakeholder, lodging*

JEL Classification: *L83, M1, O1*

INTRODUCTION

Hotels and resort lodging facilities affect the sustainability of the natural environments in which they are developed and operated by the consumption of natural resources and the release of CO2 gases, large amounts of waste-water and solid waste matter. The U.S. Green Buildings Council (USGBC) estimates that worldwide, commercial buildings account for 13.6 percent of fresh water withdrawals, 72 percent of electricity consumption, 39 percent of CO2 emissions and 40 percent of energy use. The USGBC also estimates that commercial buildings that are built and operated sustainably can result in a savings of 24-50 percent of

energy use, 33-39 percent of carbon emissions, 40 percent of water use, and 70 percent of waste cost (USGBC, 2011). The American Hotel & Lodging Association states that in 2011 there were 51,015 limited and full service hotels operating in the United States. (AH&LA, 2011). If this body of commercial lodging buildings can offer a profile of how they collectively and individually reduce consumptions of resources and outputs of CO2 emissions and waste water and solids, it would present an example of socially and financially responsible operating business practices to stakeholder groups worldwide.

Sustainability and green management practices have become important business concerns in the United States. As a result, a variety of Corporate Social Responsibility and Corporate Sustainability programs have been implemented by U.S. based corporations and companies. An outcome of these efforts is a requirement that facilities where meetings and events sponsored by these companies practice sustainability in the operations. It has become important to meeting and corporate event planners that facilities in which meetings and events are held, and the associated companies serving them, have evidence of sustainable green business practices. Green Meetings have become a classification of meeting planning and featured on a variety of planning web sites such as Meeting Professionals Internationals web site, http:www.mpiweb.org.In response to stakeholder pressures from both U.S. and International organizations, corporations and government groups, this research study seeks to identify a profile of the operating activities of sustainably operated hotels and resort lodging properties in the area surrounding Miami, Florida.

Geographically Miami, Florida is located on a resource stressed peninsula extending along the tip of Southern Florida, bordered by the Atlantic Ocean to the east, the Florida Bay to the south and the mile wide, sixty mile long 'River of Grass' in the Florida Everglades to the west. Potable drinking water is sourced from Lake Okeechobee which flows into the Everglades, underground aquifers in the limestone shelf of the peninsula and rainfall. According to the National Oceanic and Atmospheric Administration (N.O.A.A.) the mean average temperature year round for Miami in 2011 was 78.2 degrees F, 1.1 degree F above normal for the year with an average humidity level of 75.9 percent. The number of days in which heat temperatures were above 90 degrees F in 2011 for the region was 51. (srh.goaa.gov) Energy demand for air conditioning in response to higher levels of humidity and heat was

significant. Drought conditions were experienced just north of Miami creating a lower level of potable water supplies for the region.

Historically the Southern Florida region weather pattern has been classified as tropical. If the South Florida summer weather trend of higher temperatures and lower precipitation rates continues the increasing pattern on which it has been tracked by N.O.A.A., then commercial building operating practices will need to adjust to the changing variables of weather.

Southern Florida,in particular the City of Miami and surrounding communities, ranks tourism as a primary economic driver. The Greater Miami & the Beaches Convention & Visitors Bureau (GMCVB) reports that in 2011 the greater Miami area welcomed 17,865,831 U.S. and international visitors, with an average length of stay for all combined visitors of 5.9 days. (GMCVB, 2012) Lodging facilities represent a significant percentage of commercial buildings in the area. The Greater Miami and the Beaches Hotel Association (GMBHA) has a membership of 163 full and limited service hotel properties with an average of 208 sleeping rooms per member hotel. (GMBHA, 2012) The average hotel occupancy for Miami area hotels in 2012 was 75 percent with an estimated 1.5 guests per room, or 234 guests per room night. (GMBHA, 2012) Given these variables, it is estimated that GMBHA member hotels serviced 14,348,880 guests on a daily basis in 2011, or 2,432,013 guests over the average 5.9 day length of stay for the year. The resulting resource consumption in the areas of energy and water severely impacts the demand on local resources. Waste output as a result of the introduction of this population group also increases in both waste-water output and solid waste. Efforts by lodging properties to reduce the impact of their hotel guests, who make up the majority of the incoming visitor group, will reduce the strain on the City of Miami and Miami Beach's infrastructure, local power companies and waste management efforts. In addition it will reduce property operating costs and increase the value of revenue by bringing more profit to the bottom line.

METHODOLOGY

The methodology used for this research study is a comparative analysis of the results of survey interviews conducted in 36 Greater Miami and the Beaches Hotel Association (GMBHA) member hotels in Miami, Florida, U.S.A.. This qualitative research effort included on-site

visits, semi-structured interviews and a survey instrument. The analysis for this research study seeks to determine the percentage of hotels that participate in operating activities which result in the conservation and use-reduction of water, energy and waste output. The analysis is based on the four subgroups common to the survey group; property location, total number of sleeping rooms, affiliation and primary use.

The analysis of the group survey results is separated into four specific areas of operations that affect the sustainability of a lodging facility to include consumption of water, electricity, energy and waste output. The comparative analysis seeks to identify the percentages of participation between the four sub-groups and the percentage of overall participation in each of the four operating practices.

The intention of the data analysis is to:

- Identify those sustainable operating practices common to the success of the groups as a whole.
- Conduct a comparative analysis of each subgroup in order to draw conclusions based on the characteristics of the subgroup relative to specific operating activities.

RESULTS

Survey results of sub group one: primary use

Table 1. Primary Use: Overview All Operating Activities

Categories	Green Program	Certification	Waste Measure ment	Recycling Program	Energy Efficiency Program	Linen-Towel Reuse Program	No-smoking Policy	Purchasing
Resort	71%	43%	29%	100%	93%	93%	100%	64%
Non-Resort	57%	43%	38%	100%	86%	95%	100%	67%

The subgroup Primary Use, separates the survey results into the categories of resort or non-resort lodging property. The importance of recreational tourism to overall tourism in the Miami area has created a very specific division in the focus of property use and facilities. These two divisions are resort and non-resort.

The overall survey results of this subgroup indicate a higher percentage of green programs present in resort properties, 27 percent,

accompanied by slightly higher level, 11 percent, of green certification programs.

The non-resort properties have a higher percentage of waste management activities and waste reduction purchasing activities, 9 percent. Both city-wide recycling requirements and no-smoking regulations account for the 100 percent participation in both recycling and non-smoking policy in the surveyed properties. Energy efficiency activities have a slightly higher application in resort properties, 11 percent. There is an almost equal participation in linen-towel reuse programs.

Survey Results Sub Group: Affiliation

Table 2. Affiliation; Overview All Operating Activities

Categories	Green Program	Certification	Waste Measurement	Recycling Program	Energy Efficiency Program	Linen-Towel Reuse Program	No-smoking Policy	Purchasing
Brand	65%	50%	25%	100%	90%	95%	100%	65%
Individual	60%	33%	47%	100%	87%	93%	100%	67%

The subgroup Affiliation separates the survey results into the categories of brand or independent affiliation for the lodging property. This subgroup distinction seeks to determine what differences are apparent in the application of sustainable operating practices between corporate branded lodging properties and properties that are operated by independent owners or as part of a group. The brands included in this survey group represent Marriott, Intercontinental Hotels, Sonesta, Accor, Hilton and Starwood. An argument is made that franchise properties have greater flexibility in choosing whether or not to participate in a corporate 'Green' program while properties managed by the corporation with a corporate wide program are required to do so. In this survey group the distinction was not made between corporate managed and franchise in the survey process. The independent group of lodging properties represents both individually owned and managed along with properties that are part of a lodging group but not necessarily managed by the group. The distinction was not made between independent or group in the survey process.

The overall survey results of this subgroup indicate that a higher percentage of green programs are present in independent properties, 4 percent, while brand affiliated properties indicate a higher level, 9 percent, of green certifications. The brand affiliated properties have a slightly lower percentage of waste management activities 24 percent and a higher percentage of waste reduction purchasing activities, 65% percent. Both city-wide recycling requirements and no-smoking regulations account for the 100 percent participation in both recycling and non-smoking policy in the surveyed properties. Energy efficiency activities have a slightly higher application in brand properties, 7 percent. There is greater participation in linen-towel reuse programs in brand affiliation hotels, 2 percent more than in the independent hotels included in the survey group.

Survey Results Sub Group Three: Location

Table 3. Location: Overview All Operating Activities

Categories	Green Program	Certification	Waste Measurement	Recycling Program	Energy Efficiency Program	Linen-Towel Reuse Program	No-smoking Policy	Purchasing
Beach	59%	35%	41%	100%	94%	100%	100%	65%
Airport	80%	60%	20%	100%	100%	100%	100%	60%
Urban	75%	63%	38%	100%	50%	75%	100%	63%
Suburban	40%	20%	20%	100%	80%	100%	100%	80%

The subgroup Location separates the survey results into the four locations most common for lodging properties in the Miami area; airport, urban, suburban and beach. This subgroup distinction seeks to determine what differences are apparent in the application of sustainable operating practices between locations offering distinct operating conditions that affect the operations of the lodging property. Given the popularity of recreation based tourism in the Miami area, a greater percentage of lodging properties are located in beach and suburban areas.

The overall survey results of this subgroup indicate that a higher percentage of green programs are present in properties with urban locations at 75 percent, while properties in a beach location indicate a lower level, 63 percent. Urban locations indicate a greater presence of green certifications, 63 percent, than the other three locations at 33

percent each. The properties in beach locations have a higher percentage of waste measurement activities, 44 percent than as do urban and suburban locations with 33 percent. Waste reduction purchasing activities, are highest in airport and suburban locations, 67 percent, while beach and urban locations have the lowest participation at 63 percent. Both city-wide recycling requirements and no-smoking regulations account for the 100 percent participation in both recycling and non-smoking policy in the surveyed properties. Energy efficiency activities have a lower percentage of application in urban properties, 50 percent. The participation in linen-towel reuse programs is 100% for all locations with the exception of beach locations at 75%.

Survey Results Sub Group Four: Room Number

Table 4. Room Number: Overview All Operating Activities

Categories	Green Program	Certification	Waste Measurement	Recycling Program	Energy Efficiency Program	Linen-Towel Reuse Program	No-smoking Policy	Purchasing
75 or less	80%	20%	60%	100%	80%	80%	100%	20%
76-150	50%	33%	17%	100%	83%	83%	100%	83%
150 or more	86%	50%	33%	100%	92%	100%	100%	71%

The subgroup Room Number separates the survey results into the three guest room platforms most common for lodging properties in the Miami area; 75 rooms or less, 76 to 150 rooms, 150 rooms or more. This subgroup distinction seeks to determine what differences are apparent in the application of sustainable operating practices between the overall sizes of the property. Variables that can affect the application of sustainable operating activities are staffing levels, presence of technologies and equipment, along with financial considerations.

The overall survey results of this subgroup indicate that a higher percentage of green programs are present in properties with 150 rooms or more, 86 percent, and properties with 75 rooms or less, 80 percent; while surveyed properties with 75 to 150 rooms indicate 50 percent participation. 50 percent of properties with 150 rooms or more have green certifications while properties with 76 to 150 rooms, 40 percent and only 20 percent of properties with 75 rooms or less indicate 'green' certifications. Of the properties surveyed those with 75 rooms or less have

a 60 percent participation in waste measurement activities, those properties with 150 rooms or more, 35 percent and properties with 76 – 150 rooms 20%. Waste reduction purchasing activities are highest in properties with 76 – 150 rooms, 80 percent, while properties with 75 rooms or less have the lowest participation at 20 percent. Properties with 150 rooms or more indicate a 70 percent participation rate. Both city-wide recycling requirements and no-smoking regulations account for the 100 percent participation in both recycling and non-smoking policy in the surveyed properties. Energy efficiency activities have a slightly higher application in properties with 76-150 room, 5 percent. Linen-towel reuse programs evidence a high level of participation in all room size classifications with 100 percent of the 150 or more room size properties indicating participation.

Survey Results Sub Group Five: Recycling Management

Table 5. Recycling Management

Category	Food Waste	Construction Waste	Oil (Mechanical)	Mattresses	Metal	Hazardous Materials	Landscape Trimmings	Furniture	IT Waste	Aluminum	
Number Of Hotels	4	7	9	10	10	11	11	12	16	18	
Category	Linens/Towels	Oil (Cooking)	Batteries	Toner Cartridges	Light Bulbs	Glass	Plastic Bottles	Newspaper	Cardboard	Plastics	Paper
Number Of Hotels	18	18	20	20	21	26	27	27	28	28	33

The overall survey included recycling programs as part of the data collection in order to determine what items are being recycled in the surveyed properties. While recycling is required by law by Miami-Dade

County and therefore shows 100 percent participation by all lodging properties in the survey group, it is important to understand the trends in the actual recycling efforts. Table 5 breaks down the separate recycling categories and shows the number of hotels indicating this activity regardless of the overall sub-group classifications for the total survey group. Food waste recycling efforts are hampered by a lack of companies that can both compost large amounts of food waste and pick up the waste for recycling on a daily or bi-daily basis. The overall climate in Miami prohibits storing food waste in anything but refrigerated spaces. Very few hotels currently have refrigerated waste facilities. Internally hotels do not have excess refrigeration to handle storing food waste. When these challenges are overcome, recycling food waste efforts will increase significantly. Hotel size may affect recycling efforts based on labor availability. There are numerous organizations in the area that will receive household items and furniture and participation in these categories should be able to be raised. Programs for the recycling of construction waste, metals, hazardous materials and IT waste need to be addressed. Contracts for services can include the life-cycle management of these materials and should be explored through property purchasing departments.

CONCLUSION

Overall Survey Analysis

Table 6. Overall Survey Results

Categories	Green Program	Certification	Waste Measurement	Recycling Program	Energy Efficiency Program	Linen-Towel Reuse Program	No-smoking Policy	Purchasing
Total	63%	43%	34%	100%	89%	94%	100%	66%

As stated previously, the intention of the data analysis is to identify those sustainable operating practices common to the success of the group as a whole. What is apparent in the sub-group analysis is that for all properties included in the survey, there is little evidence of a great degree of difference of green management programs and certifications in brand affiliation hotels over independents hotels, with a higher percentage of

both in resort hotels. The location sub-group identifies hotels in urban locations as having a higher percentage of both green programs and certifications than beach, suburban and airport location properties. Room number however, shows a significant percentage of fewer green programs in the mid-range size hotels. Overall the percentage of participation for all properties is only 67 percent. In the area of certifications all properties show even less participation with a conversion to only 43 percent of properties with a documented green certification program. Increasing participation in both activities will be important to the stakeholder demand for documentation of sustainable operating practices. In the areas of energy and water management there is a high percentage of participation in all activities. There is an 11 percent higher rate of participation in resort properties for energy efficiency programs than non-resort properties. Recreation facilities with larger areas of square footage may account for this difference as the cost for non- participation will be significantly higher in resorts than non-resorts. The investment in newer technologies might not present the same ROI to investors for non-resort properties. There is little difference in participation between brand and individual properties. Location of properties appears to reflect the resort/non-resort findings with all locations except urban indicating 100 percent participation. The presence of linen-towel reuse programs appears to reflect indicators similar to the energy program participation levels. Water savings resulting in the application of this program along with energy, labor and inventory cost savings is significant. Resistance to the implementation of this program generally relates to guest satisfaction levels related to hotels with higher room rates. In this survey affiliation and primary use show very little difference in percentages of participation. Variation is indicated in locations with urban properties showing only 75 percent participation in contrast to 100 percent participation in the other three locations. Room number also appears to affect participation levels with larger properties indicating 100 percent and the mid-range and smaller properties, 80 percent. The total profile of the survey group indicates high levels of participation in both of these programs.

Waste measurement activities, documented by both waste measurement and purchasing, are countered by recycling efforts at 100 percent. Miami-Dade County imposes fines for non-compliance of mandatory recycling laws. Waste measurement activities are tied to reducing haulage rates and measuring carbon offset. Purchasing efforts

are tied to reducing handling and haulage costs for packaging materials. The reduction of waste management costs can be significant, especially in mid-range and large properties. However, smaller properties may not have the human resources to handle these efforts. Waste measurement efforts are indicated at 33 percent and 39 percent at both resort and non-resort properties. There seems to be a slightly higher percentage of participation in individual properties than in brand properties. Locations in all but airport show a similar rate of participation. The airport properties included in this property indicated zero participation in this effort. However, purchasing efforts to reduce packaging shows a similar rate of participation in all four locations. Room number does not appear to have any effect on participation as the percentages are mixed within the subgroups. The total profile of the survey group does, however, indicate a reasonable level of participation at 67 percent in purchasing activities.

Overall, the data set of 36 GMBHA member hotels provides a profile of sustainable operating practices. Representing 21 percent of the organization's membership, the profile presents responsible energy and water consumption management but a need to establish more effective waste reduction and measurement practices. Over half of the survey group, 24, has established green programs. 15 properties in the survey group have achieved certifications representing 41 percent of the survey group. To meet the increasing needs of international meetings, conventions and individual guests for documented sustainable operating practices, these efforts will need to be increased significantly. The conclusion can be drawn that this survey effort provides a representative profile of the GMBHA hotel members and a platform upon which to now direct education and business efforts. As year round climate temperatures increase, precipitation cycles change and the two season weather patterns continue to be difficult to forecast, lodging properties in the Greater Miami area will need to adjust their operating practices to meet ever increasing demands for energy, safe water and reduced waste output.

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