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Meeting the Needs of Sustainability, Economics, and Luxury in The Specification of Hotel Interiors

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Abstract

There is an immense need for 'green' hotel buildings to provide guests and employees with a healthy and comfortable indoor environment. However, sustainability in indoor environments, especially for five-star hotels in terms of materials and finishes, could harm the hotel's superiority and luxury experience. This paper explores these essential concerns and limitations regarding the hotel industry and its move to become more sustainable. It considers an approach whereby interior designers can address and balance the need to integrate materials and practices that create five-star luxury together with reducing environmental impact. The study is based on a comprehensive literature review conducted to identify these conflicts in addressing 'green' indoor and luxury hotel environments and also proposes an approach to analyzing materials and finishes that can contribute to the establishment of green hotels while maintaining luxury. The hotel industry needs more research on sustainability. Studies such as this will provide interior designers with an informed process of specifying sustainability and luxury in the context of the design challenges they face in the hospitality field.

Keywords: *Sustainability, Luxury, Indoor environment, Five-star hotel, Sustainable materials.*

1. Introduction

There has been much discussion on sustainability as a result of businesses trying to minimize the adverse effects of their activities on the environment, economy, and society (Journeault, 2016). Hazardous business activities, such as waste creation and toxic emissions, which result in or exacerbate environmental damage, are the root cause of the problem of lack of sustainability (Zhu et al., 2010). This is crucial in the case of the hotel sector, which is blamed for producing excessive solid waste (Singh, Sundari, & Nath, 2015).

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Although there have been several studies on sustainability, many of them concentrate on the industrial and construction industries (Yu et al., 2020; Harik et al., 2015). As a result, the hospitality industry needs to consider sustainability issues more. Sustainable hotels are the ones that employ eco-friendly practices in their operations, maintenance, services, logistics, goods, and supplies to lower their environmental effect dramatically. Reducing waste, conserving energy, and using less water are three of its main components. According to a recent study by Moubarak and Qassem (2018), using sustainable interior design techniques can improve the built environment's aesthetics while simultaneously saving energy, cutting emissions, and improving occupants' physical and mental health. Unlike conventional interior design methods, sustainable methods emphasize material considerations, environmental effects, health effects, simplicity of deployment, and upkeep (Kang & Guerin, 2009; Moubarak & Qassem, 2018). These concepts are also supported by Afacan (2014), who stated that interior design is one of the most crucial components of creating sustainable architecture and is, therefore, crucial for sustainable design development.

Researchers like Moubarak and Qassem (2018) have noted that a sustainable interior can have several advantages, including energy savings, improved occupant health, and less waste. These advantages show that sustainability must be incorporated into internal design processes to improve and maximize the indoor environment's performance. The present study focuses on this; the sustainability of hotels, especially in their interior design. Moreover, there is growing concerned about the selection of materials and other maintenance elements as interior designers switch from conventional design to sustainable design strategies (Kang & Guerin, 2009). A further claim by Mathur and Khanna (2017) is that hotels can improve their competitiveness in the market by adopting sustainability practices. Additionally, according to Stylos and Vassiliadis (2015), luxury hotels frequently forgo eco-friendly and sustainable procedures.

1.1. Conceptualization of Sustainability

Environmental activists have become increasingly interested in sustainability due to growing concerns about air pollution and the loss of natural resources. Organizations worldwide are concentrating more on their efforts to lessen their influence on nature to address this (Walker & Brammer, 2012). Salas-Zapata and Ortiz-Muoz (2018) noted much need for clarification regarding the term's genuine meaning. As it seeks to study the application and integration of sustainability in interior décor practices and material choice, this definition is strongly tied to the research's chosen context. Despite this growing concern, most studies on sustainability have concentrated on the manufacturing or construction industries (Kylili & Fokaides, 2017; Olawumi & Chan, 2018). The service sector, particularly the hotel business, has received little attention.

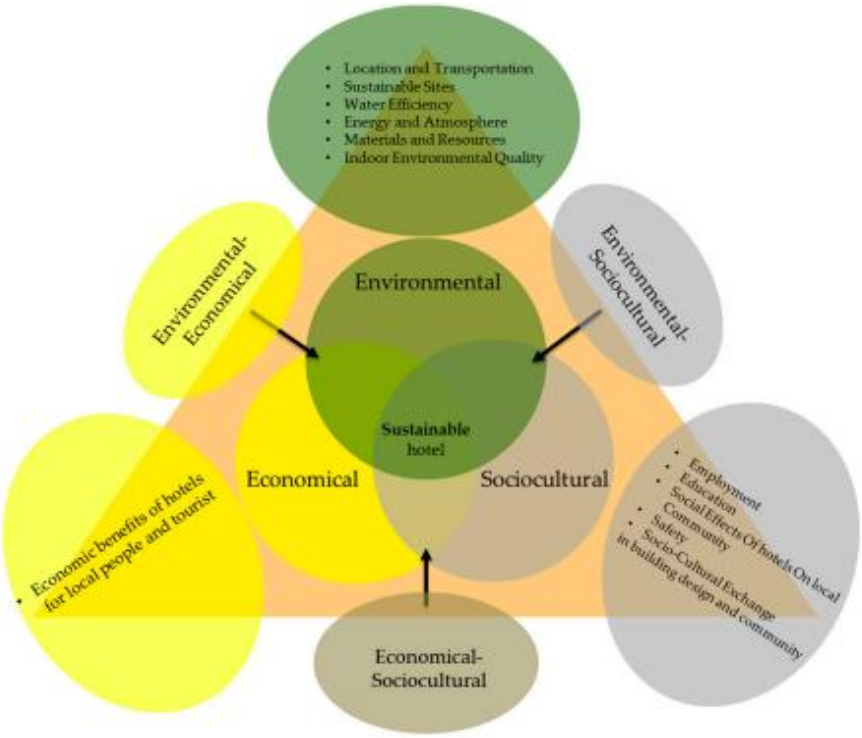

Figure 1. The relationship between environmental, economic, and sociocultural aspects of a sustainable hotel (Adopted from Abokhamis Mousavi et al., 2017)

Sustainable development is defined by the United Nations World Commission on Environment and Development (UNWCED, 1987) as a method for "meeting the demands of the present without sacrificing the ability of future generations to meet their requirements" (Jones, 2008). In its 2008 report, the Global Development Research Centre (GDRC) emphasizes the need to maintain a delicate balance between people's desires to improve their quality of life and sense of well-being and the need to protect the environment and its natural resources. The Environmental Protection Agency (EPA) (2012) defines it as centered on three critical aspects of environmental care: economic responsibility, social concerns, and the preservation of the environment itself (Jones, 2008). This comprises the "three Es"—ecology (socio-cultural), environment, and economy. The relationship between each is shown in Figure 1.

The interwoven and dependent links between people, their environment, and company development and progress are highlighted by the harmony between environment, ecology, and economy, further expanding holistic thinking within the sustainability movement.

1.2. Sustainability and the Indoor Environment

Because of the carbon emissions they generate, the building trades significantly impact the environment in which we live. Interior designers have an outstanding obligation to address these environmental challenges by choosing specific project options. They must make very thorough decisions because they choose the parts, appliances, and overall improvements. When employing environmentally friendly materials, they must also consider the site's location, financial considerations, cleaning and maintenance structure, and high-tech outcomes (Moxon, 2012).

In the past, indoor-environment creators only offered a one-way service to the hotel's interior, especially for any elements directly tied to a guest (Hayles, 2015). Most of the design work was focused on the building's aesthetic, aligning it with current and cutting-edge high-end designs, with no thought given to reducing emissions and lowering energy costs. Additionally, the designers paid little to the pollution issue and did not consider how their component choices would affect the guests' physical and mental wellbeing.

Recently, strategic design has had a revival that supports the creation of eco-friendly environments where people may live, play, and work healthily. The world is finally concluding that humans, their homes, and their neighborhood are all connected when it comes to creating environmentally viable structures. Additionally, customers are starting to understand their impact and role in the world. The motivation for more responsible indoor space production came from recognizing that we have a stake in a cleaner planet (Hayles, 2015).

The World Watch Institute estimates that the construction sector contributes 10% of the global GDP (US Department of Energy, 2003). This includes business operations and equipment, which consume between 17 and 50% of the global environment and have a negative impact on the world's standard of living. Depending on how pure the air is, buildings can also impact a community's welfare. Buildings with air pollution have been linked to rising respiratory illnesses like allergies and asthma among those who live there (Jones, 2008). So everything that would help "the objective of reducing negative impacts on the environment and occupants and maximizing positive impacts on environmental, economic, and social systems over the life cycle of a building" (Kang & Guerin, 2009) should be considered while designing environmentally friendly interiors.

1.2.1 . Sustainable Materials for the Indoor Environment

Any environmentally friendly building should strive to provide a relaxing and pleasant ambiance while promoting a healthy way of life. It should be spacious enough to fulfill the purpose for which it was first constructed and equipped with the necessary utilities and auxiliary facilities to guarantee a healthy standard of living (Akadiri et al., 2012).

The interior materials of buildings intended to house enterprises are essential. Commercial buildings are upgraded around once every five to seven years. As a result, considerable amounts of natural resources are used, and a large amount of scrap material is produced. According to Treloar et al., this turnover results in energy usage in the form of temporary and permanent disposable furniture and other fittings that can even exceed the energy used for 40 years. While the costs for non-sustainable components are generally higher, gaps could be quickly filled with more significant operational energy savings as more energy-efficient items are supplied.

Materials go through several life stages over time. When choosing components, builders and designers must take into account how their actions will affect the state of the world after they have finished using them [13]. People attempting to incorporate sustainability into their interior design must consider how green their material choices must be, indicating that the focus should be on factors like energy efficiency or biodegradability (Bonda & Sosnowchick, 2007).

1.3. Sustainability in the Luxury Hotel Sector Design

The environmental impact of the hotel industry is relatively high because it uses a lot of resources, produces a lot of solid waste, and has a large carbon footprint (Bhutto et al., 2021; Hu et al., 2015; Singh et al., 2015). Sourvinou and Filimonau (2018) predicted that as international travel increased, the environmental effects of hotels would also rise. Such research unequivocally shows the necessity of implementing sustainability from the luxury hotel construction's design phase. Sustainability concerns in luxury hotels start with design (Padma & Ahn, 2020; Sozer, 2010). This is because hotel-related characteristics are essential for visitors' satisfaction.

In addition to promoting resource conservation, the sustainable design also encourages operational effectiveness and the health of the building's occupants, upholds luxury standards and aesthetics, guarantees customer happiness, and maximizes shareholder value (Abdelrazaq et al., 2021; Ahn & Pearce, 2013; Withiam, 2011). For instance, Ahn and Pearce (2013) observed that spaciousness, exotic materials, and opulent ambiance and lighting are some of the essential design elements of luxury hotels. However, as the

authors point out, "such exotic traits frequently collide with the sustainability criteria, which emphasize lowering environmental footprint." Similarly, Withiam (2011) suggested that hotel operators will face numerous difficulties if the design is unsuccessful.

According to Mang and Reed (2020) and Zhao et al. (2019), green building principles consider a building's whole lifecycle, beginning with its design, construction, use, and eventual demolition. A building is considered to be green if ecological principles are used in its design and construction (Zhao et al., 2019); green construction techniques can be used to maintain a healthy indoor environment and address several problems (Geng et al., 2019; Ahn, Pearce, & Ku, 2011). Due to these advantages, many hotels are implementing green and sustainable management techniques to guarantee minimal environmental effects (Reid et al., 2017). For instance, they are emphasizing waste management, pollution control, and energy and water efficiency, as well as introducing innovation (Wei et al., 2015). Erdogran and Baris (2007) highlight that reduction in energy conservation, water conservation, and improved waste management are the three critical green measures used in the hospitality sector. This is represented in Figure 2, along with the four Sustainable Development Goals (SDGs) it can aid in achieving.

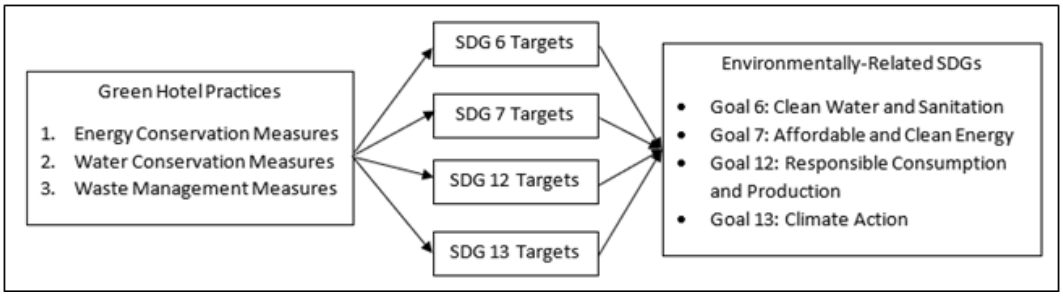

Figure 2. Essential green hotel practices about Sustainable development Goals (Adapted from Abdou et al., 2020)

According to Anthonisz (2014), several innovations are also implemented under sustainability. The authors conducted their research in Dubai Marriott hotels, which have a back-end operational framework for effective room servicing. Such cutting-edge techniques, according to Reid et al., (2017), could dramatically improve the sustainability results of the buildings. According to research done in hotels in Turkey by Sozer (2010), using passive solar design strategies can significantly lower energy use, create a building envelope that can handle temperature conditions, and sustain heating and cooling settings. Apart from these few studies, more is needed about how sustainability is incorporated into hotel architecture from the ground up. Thus far, most of the research has been on sustainable management techniques rather than technical design-related issues (Reid et al., 2017; Wei et al., 2015). As a result, the current study concentrates on sustainability concerning interior design.

1.4. Sustainability in Interior Design

Architects' and designers' social obligations in interior design have recently received more attention (Azzopardi-Muscat et al., 2020; Anderson, Honey & Dudek, 2007; Lee, 2014). The need to sustain interior designers' ethical behavior for the benefit of society and the general public is the cause of this (Azzopardi-Muscat et al., 2020; Gurel, 2010). As a result, interior designers are now considering sustainable design as a standard for adopting practices linked to their choice of materials and building processes and systems to address environmental concerns (Lee, 2014). In traditional interior design, the environmental aspect of lowering emissions, contaminants, and occupant health was overlooked in favor of the aesthetically pleasing improvement of the interior environment (Yang et al., 2011). However, Environmentally Sustainable Interior Design (ESID) has more recently stimulated interest in sustainability, and experts in this discipline have

realized the significance of environmental sustainability of the built environment (Hayles, 2015). The fundamental idea behind ESID is sustainable design, which aims to produce an environment that is both physically and mentally pleasant and healthy (Kang & Guerin, 2009). According to the author, eco-friendly interior designs can improve human health and lessen their detrimental effects on the environment. Due to these factors, the focus has been placed on promoting locally accessible materials, durable materials, and renewable resources. According to Lee et al. (2014), using such sustainable interior design techniques lessens the effects of incorrect material selection on the environment and human health.

The authors specifically pointed out that because flooring materials frequently include dust and other pollutants, residents may experience health problems. An earlier study showed that carpet harms asthma (Jaakkola et al., 2006). PVC is also linked to allergies, asthma, and many other chronic disorders in children (Larsson et al., 2010). Thus, sustainable building and restoration procedures and appropriate material selection can improve indoor air quality (Allen & Kim, 2013). Additionally, ventilation design advancements might assist prevent respiratory illnesses and boost productivity (Loftness et al., 2007). Hawsawi (2016) advises designers to use durable, adaptable finishes and, if possible, to repurpose the furniture. This can lengthen the product's lifespan and reduce waste, both of which have a negative influence on the environment. Furthermore, according to Bumgardner and Nicholls (2020), utilizing sustainable practices, such as reusing furniture, might boost a company's competitiveness.

Interior design is crucial in ensuring a building's long-term viability (Hayles, 2015). Thus, sustainability is essential to interior design because it not only affects the planet's resources but also has the potential to improve economic outcomes and human health. While the aesthetics of the design are essential, it is crucial to consider the various sustainable approaches to minimize the environmental impact. Interior design aims to reduce any adverse environmental effects and employ sensitive designs that can result in sustainable indoor environments and support the occupants' psychological and physical comfort. As a result, experts from past studies have frequently stressed the vital role that interior designers play (Hayles, 2015). The current study intends to chronicle the interior designers' choice of eco-friendly materials when developing eco-friendly hotel designs in light of these factors.

1.5. Sustainability and Interior Design in the Hospitality Sector

Given that the focus of the current study is the hospitality sector, it is crucial to comprehend the value of design, sustainability, and the interaction between the two. According to Ahn & Pearce (2013), there may be a conflict between two factors in the context of the hospitality business, namely sustainability and design. On the one hand, hoteliers are creating a luxurious setting to increase visitor happiness while also implementing procedures to meet their environmental aims (Ahn & Pearce, 2013). For instance, several global hotel chains are embracing the boutique hotel trend and offering their visitors an unrivaled level of luxury, style, and comfort (Baek et al., 2019; Heide & Gronhaung, 2009). The writers point out that because these hotels are primarily focused on aesthetics, they strongly emphasize interior design, high fashion, and unique interior features. Hotels frequently forego sustainability in favor of using materials that uphold the aesthetics of the design in order to maintain high interior designs (Heide & Gronhaung, 2009).

Despite the brand's elevated luxury status, these features frequently collide with green building techniques that strive to reduce the environmental effect (Ahn & Pearce, 2013). For instance, Moscardo (2017) noted how the frequent reports of excessive chemical usage for cosmetic upkeep and cleaning impact the interior atmosphere of affluent hotels. As a result, there must be a trade-off between sustainability and interior design

(Moscardo, 2017). The hospitality industry is increasingly placing more attention on environmental sustainability, as Han & Kim (2010) pointed out. To do this, several hospitality brands have implemented initiatives to decrease the environmental harm brought on by using various hospitality products or services (Chan, 2008). For instance, upscale boutique hotels are currently adopting low-volatile organic compound (VOC) generating materials to control air pollutants, according to Ahn & Pearce (2013). In this context, Wills (2015) pointed out that a chain of five-star hotels has embraced sustainable and eco-friendly methods. Healthy hotel interiors are one of several sustainability objectives covered by its Planet 21 initiative.

Although a study on environmentally friendly interior design principles has been done, the hotel business needs more awareness. Given the conflicting nature of the hoteliers' objectives, Ahn & Pearce note that it is essential to understand the sustainable interior design strategies of lavish hotels (2013). Luxury five-star hotels are commonly those that do not follow sustainable and environmental measures, according to research by Stylos and Vassiliadis (2015). According to their assessment of implementing sustainable and environmental practices based on the hotel's luxury grade, the less sustainable the activities are at a posh hotel. However, a different study by Mathur and Khanna (2017) in the context of India found that several of the top five-star hotels in the city of Delhi are using sustainable business practices and have as a result achieved a sizable competitive advantage. As a result, the setting may affect how sustainability methods are used in five-star hotels. However, there are few studies of this kind focused on the UAE or the

GCC. The numerous sustainable interior design techniques and material selections are highlighted in the following section.

1.6. Sustainable Interior Design Materials

The words "green" and "sustainable" are frequently used interchangeably, yet they have different meanings. According to Hayles (2015), the former primarily focuses on the health and safety of the individual. In contrast, the latter offers a broader, holistic, and global perspective that worries about the environment and the planet. Both ideas mentioned above are included in the ESID, which suggests that interior decorators must use sustainable interior design strategies when creating new buildings and remodeling existing ones (Hayles, 2015). It is necessary to take a complete strategy in which all systems are created and materials are selected to reduce their adverse environmental effects (Kang & Guerin, 2009). This can be achieved by focusing on a different goal individually. These goals (shown in Table 1) can then bring about the sustainability of each segment to enhance the quality of the environment as a whole.

Table 1. The goals of sustainable architecture.

Goals	References
Focusing on the well-being of people and enhancing their physical and emotional health	Smit and Arraes, 2019
The use of environmentally friendly materials in their production, use, or destruction.	Safina et al., 2017; Vogler, 2016
Environment-awareness and environment-coordination	Carvajal-Arango et al., 2019; Murtagh et al., 2016
Minimizing the use of fossil fuels	Li and Wang, 2016; Santos et al., 2019
Using renewable energy sources like sunlight	Santos et al., 2019; Zuo et al., 2017
Minimal environmental deterioration	El-Sayegh et al., 2018
Decreased use of carbon dioxide emissions	Santos et al., 2019; Zuo et al., 2017
Observe the laws of nature and maximize its potential	Carvajal-Arango et al., 2019; Murtagh et al., 2016
Using recycled and second-hand materials for construction	Santos et al., 2019; Zuo et al., 2017

Reduce the amount of waste generated by building and construction	Santos et al., 2019; Zuo et al., 2017
Prolonging the building's usable life	Safina et al., 2017; Vogler, 2016
Avoid using building materials that are incompatible with nature.	Santos et al., 2019; Zuo et al., 2017

Material choice is one of the essential factors in any design project because it has the most effect on the sustainability outcome (Akadiri, 2015). Using environmentally friendly materials can significantly decrease the environmental effect (Kang & Guerin, 2009). Controlling the depletion of natural resources and minimizing the influence on inhabitants and the environment's health are among these (Araji & Shakour, 2013). Even though choosing sustainable materials is essential, there has yet to be much research on how interior designers choose sustainable materials (Lee et al., 2013). Implementing ecologically sustainable equipment, furnishings, and finishes presents difficulties for interior designers and architects due to the need for more research and knowledge. According to Moussatche et al. (2002), clients' needs, preferences, aesthetic taste, and financial constraints are the main factors influencing the choice of material, with sustainability receiving the least attention. This is particularly true for the hospitality sector, where there may be tension between upholding high design standards, satisfying visitors, and applying sustainable methods. Sheehan (2015) claimed that the hotel business could be faster to implement green concepts due to this. Furthermore, some of the most frequent obstacles to using sustainable materials are perceived cost, knowledge of renewable products, a lack of experience, and customer opposition (Mate, 2009; Lee et al., 2013).

Nevertheless, currently, hoteliers are focusing on evaluating environmental achievements and showcasing their expertise in environmental protection by using sustainable products (Cain, 2007; Han & Kim, 2010). For instance, carpet is a standard hotel component and fulfills crucial design functions like thermal insulation, comfort, and safety (Cain, 2007). The author said that while selecting a carpet, it is essential to consider the type of fiber, its density and depth, construction procedures, and cleaning capabilities. There are durable Vinyl Composition Tiles (VCT) and tiles that contain organic and inorganic colors (Cain, 2007). There are more recycled materials in the organic part (Riggs, 2003). However, because its inorganic component produces polyvinyl chloride as a byproduct, there is increasing concern regarding VCT (Lent, 2003). Therefore, ceramic tile with recyclable components is advised because it has been shown to boost environmental performance (Lippiatt, 2002). Other renewable materials for flooring include linoleum, cork, bamboo, and recycled rubber (Hayles, 2015). Along with tiles, Hayles (2015) added that choosing fabrics is crucial and should consider the chemicals used in manufacturing because they may cause air and water pollution. Additionally, it is crucial to take into account its renewability. As an illustration, synthetic fiber will be recyclable. Moreover, if the cloth is durable for extended periods, it can be considered environmentally beneficial (Hayles, 2015). Some of the sustainability criteria that are frequently taken into account when choosing sustainable materials are described below:

1.6.1. Durability

There is a direct relationship between durability and sustainability. The longer a product lasts, the more valuable it becomes, the fewer resources it uses, and the less waste it produces while still providing basic needs (Fletcher, 2012). As a result, spending on maintenance can be positively or negatively impacted depending on how quickly materials deteriorate, affecting how long infrastructure will last (Schlangen & Sangadji, 2013).

1.6.2. Recyclability

Recyclability is an essential factor in choosing materials since it is closely linked to sustainability. The need for materials to be recyclable in order to protect resources and

advance sustainability goals has been emphasized by LEED (2019). The recommendation clarifies which trash should be collected individually for reuse or recycling and which should be disposed of totally during the construction of the structure (Keller, 2016). Ahn and Pearce (2013) stated that hotels are utilizing recycled materials in both the interior and external designs, such as gypsum (with 100% recycled materials), staircase steel (50% recycled substance), and asphalt (25% recycled content).

1.6.3. Aesthetics

A widespread debate occurs over the aesthetics of sustainable architecture. Some claim that a distinctive, sustainable style that maintains the aesthetic value of the built environment has yet to appear (Khetani, 2020). Aesthetics have drawn much attention in the hotel industry since appealing interior design influences consumers' experiences and purchasing behavior (Alfakhri et al., 2018). The inherent tension between sustainability and aesthetics makes it challenging to choose materials and could impact how sustainable hotels are run. Understanding the aesthetic value of the materials chosen by the hotel interior designers has allowed for resolving such issues.

1.6.4. Maintenance

The sustainable operation of the built environment is significantly influenced by maintenance, which is a core role (Malina, 2012). Jasiulewicz-Kaczmarek (2013) observed that due to maintenance's advantages in terms of cost, the safety of the interior environment, and impact on the outside environment, are included in the firms' overall sustainable strategy.

1.6.5. Sound Absorption

Any noise or unpleasant sound is considered a stressor or pollutant in the environment (Selvaraj et al., 2019). It may negatively impact the occupants, impairing their sleep ability and causing other adverse health effects (Na, Agnhage, & Cho, 2012).

1.6.6. Fire resistance

Fire resistance must be considered when designing buildings and is a crucial component of sustainability (Rahardjo & Prihanton, 2020). Fire outbreaks can cause property damage and safety concerns and harm the stability and integrity of buildings (Rubaratuka, 2013). According to Bezas et al. (2017), temperature fluctuations in materials frequently cause modifications to their fundamental structural characteristics. As a result, these factors must be considered when choosing the materials.

1.7. Strategies to Integrate Sustainability in Interior Design

The idea of sustainability can be incorporated into interior design processes in various ways. According to Ahn & Pearce (2013), businesses must use green principles when choosing resources and materials and make an effort to reuse and recycle content. As the author points out, using locally made goods and eco-friendly furniture is another critical way to encourage sustainability in interior design. Furniture is one of the essential elements of interior design work and finishing. According to the author, recyclable wood can be used when choosing a material for furniture. Recycling is, therefore, one of the critical techniques in sustainability (Ayalp, 2012). However, according to the author, the aesthetics of recycled objects are frequently compromised. This factor is essential for the hotel sector, which aims to give guests the finest luxury experiences.

During the design stage, one critical factor is improving the indoor environment (Ahn & Pearce, 2013). According to the author, the interior environment and the level of comfort and happiness of hotel visitors can be significantly impacted by design decisions. Therefore, it is crucial that the designers use durable and flexible finishes and, whenever possible, reuse the furniture. The LEED framework (2019) emphasizes how crucial it is to control indoor air pollution by selecting goods that are low in VOC (LEED, 2019).

Additionally, ventilation and air quality are essential factors. Moreover, Afacan (2018) claimed that using natural light could enhance the quality of the interior environment. Thus, the author suggested that renewable energy sources, including sunlight, water, wind, and geothermal energy, should be considered during the interior design.

According to Ahn & Pearce (2013), the company's operational plans should consider sustainability. In other words, green construction techniques can solve various sustainability issues, such as material selection, maintenance schedule, chemical use, and commissioning schedules. The above ideas can be used to create sustainable interior design and enhance the hotels' environmental performance. These tactics must, however, consider the expectations of the visitors. Consequently, using the LEED Framework for green buildings to assess environmental performance is possible (LEED, 2019).

1.8. Environmental Assessment Methods

Diverse factors need to have prompted extra thought when selecting and specifying products with a sustainability focus. The following illustrates a more positive attitude about the fact that our natural resources are becoming scarcer. More people want to be healthy, live in homes run responsibly and more efficiently, and join organizations that monitor and support "green" building initiatives. There is Leadership in Energy and Environmental Design (LEED), the Code for Sustainable Homes, and the Building Research Establishment's (BRE) Environmental Assessment Method (BREEAM) (CSH). Additionally, some groups push cities to adopt additional laws promoting environmentally friendly practices and communities that encourage green activity with construction tax credits (as shown in Table 2). A grading system enables all parties to have a baseline by which to assess the quality of their project(s) concerning environmental considerations. When elements interfere with derailing a project's time, money, and other aspects, consistent benchmarks achieved because of ratings can help keep things on course.

Table 2. Comparison of criteria among green hotel certification programs (Adopted and Modified from Abokhamis Mousavi et al., 2017)

Criteria	Certification Programs									
-	LEED	GTSC	Breeam	Green Tourism Business Scheme	Eco-Label	Green Key	Green Building Evaluation Standard	Green Star	Green Mark	Casbee
-	United States	United States	United Kingdom	United Kingdom	European	Canada	China	Australia	Taiwan	Japanese
Transportation	✓	✓	✓	✓	✓	-	✓	✓	✓	
Sustainable Sites	✓	✓	-	-	-		-	-	-	
Water Efficiency	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Energy and Atmosphere	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Materials and Resources	✓	✓	✓	-	✓	✓	-	✓	-	
Waste	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Indoor Environmental Quality	✓	-	✓	✓	✓		✓	✓	✓	
Land Use and Ecology	✓	-	✓	-	-	-	-	✓	-	

Social Involvement and Communication	-	✓	-	✓	-	-	✓	✓	-	

1.8.1. Leadership in Energy and Environment Design (LEED)

LEED-certified structures increase energy efficiency, reduce carbon emissions, and create environments that are healthier for people to live in. They are essential for halting climate change, attaining ESG goals, enhancing resilience, and advancing more just societies.

A total of 35% of LEED credits are concerned with climate change, 20% are directly tied to human health, 15% are related to water resources, 10% are concerned with biodiversity, 10% are concerned with the green economy, 5% are concerned with community, and 5% are concerned with natural resources (USGBC, 2020).

1.8.2. Building Research Establishment Environmental Assessment Methodology (BREEAM)

The most comprehensive set of science-based validation and certification systems for a sustainable built environment is called BREEAM. Millions of buildings are registered worldwide to work toward BREEAM's comprehensive strategy for achieving ESG, health, and net zero goals. It is owned by BRE, a non-profit organization with almost a century of experience in building science and research (BRE Group, 2022). When examining the performance of structures built sustainably, the English BREEAM method came out on top. Because of "its unique capacity to cover a range of environmental issues within one assessment" and "its presentation of the results in a fashion that is widely understood by those involved in property acquisition and management," the BREEAM methodology performs well (BREEAM, 2015).

1.9. Luxury hotel specifications

A luxury hotel is committed to a high return on investment, necessitating good management (Kilment et al., 2001). In the past, less expensive labor and materials were used, which resulted in lower building and design costs. Today, specific standards must be followed, regardless of whether the property is a massive tourist destination or a small city boutique design. They consist of the following:

- Luxurious public spaces, including lobbies
- High-quality materials, finishes, and designs
- Huge, tastefully designed guest rooms with plenty of storage space and a relaxing atmosphere
- Bathrooms with excellent fittings and water flow
- Behind the main areas to give the visitors privacy

Over the past ten years, private investors have begun to purchase these buildings. In the US, this is a result of economic conditions that have led to an increase in people who are prepared to pay high fees to move from place to place for either personal or professional reasons. This kind of tourist demands top-notch service and the very best of everything. Previous designs emphasized enhancing existing hotels, which were then modernized to include the most recent in technology and telecommunication, raising industry standards.

Ahn and Pearce concurred that luxury hotels should seek out high-fashion interior design, hotel architecture, and hotel designs that encourage delighted customers to make plans to return and aims to have them recommend the facility to others. The more abundant or exotic elements and sophisticated, warm lighting are present, the more comfortable guests may feel; however, these extras may differ from green building techniques, encouraging builders and owners to exercise caution over the long term. Many have underlined that

the difference between environmentally friendly activity and contrarian behavior is probably due to the possibility that going greener could mean giving up comfort.

1.10. Luxury hotels and sustainability

There is a significant risk when it comes to construction within the field of luxury hotels and other hospitality programs, and so the more cost-effective in the short and long runs they are, the greater the demand will be. The excessiveness of the 1980s is likely to remain the same, and those designing the buildings need to consider that the best designs that support brands create less chance and increase profitability. A luxury property must create a sensory space that is gracious, space-effective, service-oriented, and committed to its remarkable history. High expenses could come into play with this, so things must be well controlled to make the best return on investment (ROI). In the past, the cost might have been less critical because the expenditures for constructing and designing such a structure were lower.

Many hotels that have just gone to environmental plans have changed their operations rather than their actual designs. The choice is critical here, and it is offered to the guests whether or not they select different towel services to reduce the use of detergents and water. Such properties utilize energy-efficient lamps in a variety of areas, including rooms. Reminders are posted in rooms asking guests to turn off electrical consumption when not needed. Some have meters that control the waste of energy and equipment malfunctions (WINCHIP, 2007). Whether traveling for pleasure or business, customers expect hotels to be responsible while still providing expected amenities. In a recent survey, more than 40% of Canadian business travelers said the hotels' environmental impact was significant. Over 30% of business travelers and one-fourth of vacationers actively looked for certified ecologically friendly accommodations (Richardson, 2017).

Less environmentally dangerous places are receiving more attention than healthy spaces (Benson, 2014). Sustainable interior design highlights the sound effects on a structure's life cycle by minimizing the negative (Kang & Guerin, 2009). One of the most critical factors in helping to maintain a sustainable environment is the material choice. Again, the interior designer must choose the appropriate materials for the hotel's visitors, workers, and owners. This is a significant task. It is essential to evaluate and strike a balance between the needs of the guests and environmental concerns. The recent £200 million renovation of the hotel's bathrooms, according to Debra Patterson, the hotel's environmental ambassador, was centered on thoughtful design. The aim was to provide the exclusive facilities guests would expect while “seamlessly blending sustainability and luxury without compromising the product for our guests” (O’Neill, 2011).

2. Discussion

The study analysed various Google Scholar articles to discuss sustainable business practices in the hospitality industry. This article can provide a basic overview of initiatives, innovations, concepts, technological developments, architectural design, and guest behaviour in the global hospitality industry. Exploring the different cultures associated with sustainable hospitality, this review article is a valuable resource for hotels, businesses, and even students looking for inspiration for new projects to apply to their projects—the hotel itself. Many hoteliers must know the resources available to help them on their sustainability journey. This document provides you with valuable resources such as ideas, places, and websites that you can use to learn more about sustainability programs that are already being implemented around the world. Students studying sustainability practices will benefit from current research content in the hospitality industry.

"The ability to meet the needs of the present without compromising the ability of future generations to meet theirs" is the definition of sustainability (Grant, 2020). This

phenomenon has global implications for achieving equality, equity, and development for all within and across generations. Hotels all over the world are interested in sustainability. Between 2009 and 2021, at least 91 "Sustainable Hotels" articles were published. A subjective qualitative review was conducted to identify the characteristics of existing literature and topics related to hotel sustainability. This study uses a variety of research bases to increase the study's credibility, provide a diverse range of perspectives and sustainable practices from around the world, and provide hoteliers and readers with a comprehensive knowledge base on these initiatives. Petri and Mikuli (2012) argue that based on the activities of leaders in economic and environmental matters, it is necessary to develop sustainability measures for the environment as a whole. The authors argue that these questions are more important than ever due to the pandemic's disruption, forcing industry insiders to adjust to this "back to normal" way of life and business. It is time for companies to take responsibility for their global impact.

Green initiatives may cause annoyance or inconvenience to customers (Han et al., 2009). Therefore, it is crucial to examine the challenges that hoteliers may face when considering sustainability activities and the motivations of hoteliers who do not want to implement sustainability practices. According to Harmon, the hospitality industry has placed more emphasis on sustainability in the last decade, whether it is merchandise, meat, goods, or food (2017). Discussions of social and political importance now often revolve around sustainability. According to Harmon, "although there is no doubt that we still have a long way to go," the first step in promoting sustainability initiatives is for hotels and guests to show a positive attitude towards sustainable development. Using resources like the Hotel Water Stewardship Initiative, Hotel Environmental Guidelines, Design-Build Manual, and Hotel Carbon Measurement Initiative is an essential first step toward sustainability for hoteliers and the entire business.

The literature confirms that sustainability is based on three pillars: social, economic, and environmental (Grant, 2020). The hospitality industry must assess its environmental impact by considering the carbon footprint of food, construction, transportation of people and guests to and from facilities, and water consumption and use (Peng et al., 2018; Burton, 2019). The hospitality industry must reduce vulnerability and maintain the health of cultural and social systems by striving to improve the daily life and well-being of its community or individual guests (Webster & Courtnell, 2019). From an economic perspective, the hotel industry should adopt a profit-driven business ideal and provide opportunities for hoteliers to create good conditions through efficient and sustainable efforts (Kim et al., 2019). After a thorough review of the literature, the authors concluded that hotel sustainability's economic and social aspects had been largely overlooked. The results show that teachers and hoteliers would do well to be as technologically savvy as possible. A boom in the green event services sector based on technology and culture is expected soon. Documents describing important moments in the sustainable development of the hotel industry should be included in the study history.

2.1. Challenges in Incorporating Sustainable Practices in the Hotel Industry

Businesses found it challenging to commit to sustainability efforts due to the high costs and gradual returns they anticipated from adopting sustainable practices (Grant, 2020). However, it was shown that, generally speaking, hotels that are considered sustainable have substantially lower operating costs than hotels that have not implemented any sustainable plans inside their companies (Nastu, 2017). Hoteliers who are ready to invest heavily in these initiatives for the environment's sake, the sake of society, and the sake of future generations typically enjoy favorable financial rewards, excellent customer satisfaction scores, and high peer comparison ratings (Walsh & Dodds, 2017). Despite these advantages, hoteliers must be more cautious to start implementing sustainable practices into their operations. According to Zhang, Wu, Liu, and Zhang (2017), hoteliers worry that their financial performance (if they become a green hotel) may suffer if recycling, resource savings, or green activities cause their customers to be uncomfortable

or inconvenienced in any way, especially given that customers pay such close attention to such aspects when they travel. This is despite the financial benefits of reducing water and energy usage and water costs (Han, Hsu, & Lee, 2009).

2.2. Limitations of the Study

The present study carries the potential danger of low generalisability due to secondary data usage as its design methodology. Since the studies are limited to the scope of this article, it is strongly recommended to review more articles from both quality and quantity perspectives in future studies. Future studies based on some vital key areas could add value to the discussion of sustainability in the hospitality industry. As mentioned, training, creating a corporate culture of mindfulness, and assessing the actual cost of sustainable products will be essential in the years to come.

3. Conclusion

High-end, environmentally-conscious hotels have recently become popular in the hospitality industry. Those working in the sector might need a more thorough understanding to close the gap between maintaining the environment and offering opulent facilities at the same time. They also need to be more aware of how their choices impact inside variables, such as the atmosphere of the hotel or its visitors. Sustainable factors often bring up a spectre of unattractive discomfort. The hotel's layout, level of luxury offered, and level of comfort all significantly impact whether a visitor chooses to stay there or not. The success of the hotel business depends on happy customers who intend to return or even recommend it to others. Designers must focus on areas of the hotel that are most accessible and visible to customers, such as the restroom, artwork, lobby, and landscape, to ensure the proper elements are there. However, there is a covert tension between the comfort and sustainability of the guests and their contentment. This can arise from attempts to conserve water and energy, which might interfere with their ability to unwind and enjoy their stay. Most upscale hotels often feature large rooms, subtle and exquisite lighting, bathrooms with oversized bathtubs, and even multiple shower heads. On the other hand, environment-friendly hotels are frequently cramped and offer a different ambiance and comfort than their counterparts. It is, therefore, necessary to find green building and design techniques that can be applied in five-star luxurious hotel environments specifically for the material appearances of the guest rooms, without sacrificing the sense of lush and comfortable surroundings while supporting wellness and health for all visitors.

Abbreviations

UNWCED: The United Nations World Commission on Environment and Development; GDRC: The Global Development Research Centre; EPA: Environmental Protection Agency; BRE: Building Research Establishment; BREEAM: Building Research Establishment Environmental Assessment Method; LEED: leadership in Energy and Environmental Design; SD: Sustainable Development.

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Conflict of Interest

The authors declare that they have no competing interests.

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