

Research on the Development of Green Hotels in the Context of Low Carbon Tourism

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Abstract: With the continuous implementation of national measures related to carbon neutrality strategy, the concept of a low-carbon economy has been deeply rooted in people's hearts. Low-carbon tourism has gradually become an inevitable trend, and the tourism industry is also undergoing orderly transformation and upgrading. To promote the sustainable development of the tourism industry, the tourism and hotel industry should also shift towards a low-carbon and green model. Hotel activities can easily bring related environmental issues, such as energy consumption, garbage generation, ecological pollution, etc. Therefore, building a green hotel will bring huge social and economic benefits to the low-carbon tourism industry. This article will address the above issues and take a low-carbon economy as the starting point, proposing sustainable development strategies and suggestions for green hotels from both the internal and external environment of the hotel, creating a low-carbon management atmosphere, and promoting the low-carbon operation of the green hotel industry.

Keywords: Low carbon tourism; Green hotels; Sustainable development

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1. Introduction

In the history of human development, the industrial revolution has driven the development of the world, gradually increasing the size of the economy, but also causing great damage to the ecological environment. A series of issues such as glacier melting, sea level rise, and temperature increase have attracted widespread attention worldwide. In 1988, the Intergovernmental Panel on Climate Change (IPCC) was officially established. In 2003, the UK first proposed the concept of low-carbon, and in 2009, Denmark held the United Nations Climate Change Conference in Copenhagen. In 2015, 195 country representatives reached the Paris Agreement, promising to work towards net zero emissions. China deeply understands the significant impact of carbon emissions on the ecological environment, and therefore the Chinese government is taking multiple measures to reduce carbon emissions.

The tourism industry was once considered a “green industry,” but now it also faces the problem of how to deal with high carbon emissions. As an important pillar of the tourism industry, the hotel industry accounts for about 19% of the total carbon emissions of the tourism industry, becoming the second largest carbon-

emitting energy source. Therefore, the concept of green hotels has emerged. Green hotels will be committed to developing low-carbon and environmentally friendly models, promoting energy conservation and emission reduction, and promoting sustainable development of hotels ^[1].

2. Explanation of relevant concepts

2.1. Sustainable development

In the 1980s, the concept of “sustainable development” was first proposed in the World Nature Conservation Outline, and the emergence of this concept allowed society to realize the importance of sustainable development. Sustainable development encompasses a multifaceted approach, requiring not only stable economic development but also environmental protection and long-term development, while also meeting the current self-development needs. Sustainable development is a fundamental requirement of scientific development and a forward-looking concept. The development of the economy and society should be based on the premise of safeguarding natural resources and the environment. It is imperative to steadfastly reject the exclusive pursuit of short-term gains while neglecting long-term consequences. Economic development and environmental protection ought to be seen as complementary and interdependent ^[2].

2.2. Low carbon tourism

Low carbon refers to lower carbon dioxide emissions in social production processes. Researchers have applied low-carbon technology to various fields, such as low-carbon communities, low-carbon culture, low-carbon art, low-carbon tourism, low-carbon economy, etc. Among them, low-carbon tourism is an important content ^[3]. Low-carbon tourism is not only a form of tourism but also an important way to promote the development of green industries. Economic prosperity and technological development have brought certain negative impacts to the ecological environment, so it is very necessary to promote the awakening of low-carbon concepts among all tourists, residents, and staff.

2.3. Green hotels

2.3.1. Definition of green hotels

At present, there is no universally accepted definition of “green hotels.” However, green hotels can be associated with the concepts of sustainable development. For example, in the operation process of green hotels, they will adhere to a responsible attitude towards the environment, make reasonable use of resources, protect the ecological environment, and pursue economic benefits while also pursuing ecological benefits. Green hotels should not only conform to the regional economic development status, but also utilize natural resources reasonably, save electricity, water, and energy, and slow down resource depletion based on the ecological environment’s affordability.

2.3.2. Concepts of green hotels

Green hotels adhere to the three core concepts of “safety, health, and environmental protection.” The principle of “safety” places a strong emphasis on public safety, fire safety, and food safety throughout the hotel’s production and operation processes. Additionally, hotels are expected to have facilities in place to ensure public safety and implement food safety assurance systems. Health concerns are centered on maintaining hygiene in operations and providing eco-friendly dining options, ensuring that guests enjoy a healthy diet during their stay and have access to products that promote both physical and mental well-being. Environmental protection refers to the reduction of energy consumption and the treatment of pollution sources, as well as energy conservation

and emission reduction.

2.3.3. Standards for green hotels

The industry standard “Regulations on the Rating of Green Hotels” (SB/T 10356-2002) proposed by the China Hotel Association and formulated by the State Economic and Trade Commission stipulates that in international practice, green hotels are divided into five levels, namely A, AA, AAA, AAAA, and AAAAA, with AAAAA being the highest level (Table 1).

Table 1. Classification of green hotels

Level	Environmental impact
A	The hotel complies with national laws and regulations on environmental protection, health, and safety, and has begun to implement some measures to improve the environment.
AA	The hotel has achieved preliminary results in providing green services to consumers.
AAA	The hotel has made effective progress in achieving ecological benefits through continuous efforts and is in a leading position in the hotel industry in the region.
AAAA	The hotel’s services and facilities are in a leading position in improving ecological efficiency in China and are highly recognized by society.
AAAAA	The hotel’s services and facilities are in a highly leading position in improving ecological efficiency, and various measures have been widely adopted and imitated by hotels both domestically and internationally

3. Analysis of the current green hotel development status in China

3.1. Key challenges

3.1.1. Ambiguity in grasping the green hotel concepts

Certain hotels lack a comprehensive understanding of green development. While they may promote themselves as green hotels, their actual operations often do not significantly differ from those of ordinary hotels. It is vital to recognize that being a green hotel extends beyond mere cost-cutting; it also involves the incorporation of advanced energy-saving technologies and green architectural design. The concept of green hotels goes beyond just adding more plants to lobbies and guest rooms; it encompasses an integral approach that encompasses hotel design, management, technical implementation, guidance, and promotion ^[4,5].

3.1.2. Insufficient emphasis on green awareness

When hotel operators lack a strong commitment to green practices and prioritize efficiency over green ideals, they often fail to instill green principles or cultivate employees’ environmental consciousness in their hotel management work. Even when some efforts are made in this regard, they tend to be superficial. Employees without proper green guidance and a weak sense of environmental awareness cannot fully grasp the importance of green initiatives, let alone effectively guide customers and consumers to support the hotel’s green measures.

3.1.3. Suboptimal utilization of energy-saving technology

Although some hotels have introduced energy-saving technology and related equipment into their green development strategies, many still struggle to maximize the utilization rate of these technologies. This may be due to the immaturity of the technology, hindering the seamless integration of energy-saving equipment. Additionally, the cost of acquiring and operating this equipment can be prohibitively high, and the equipment’s efficiency may be subpar, resulting in less-than-optimal outcomes ^[6].

3.1.4. Limited scalability

Green hotels represent only a small fraction of the overall hotel industry, primarily due to issues such as inadequate funding, insufficient awareness of green practices, and other factors. Many hotels continue to adhere to traditional concepts that do not align with modern green business models. Their management goals often prioritize economic gains as the sole goal, rather than embracing green management principles.

3.2. Key factors contributing to these challenges

3.2.1. Lack of guidance for green awareness

The hotel industry has traditionally held a passive stance on green management, with inadequate understanding of green hotel concepts. The implementation of green management practices in hotels often lacks vigor. Many senior hotel leaders prioritize the hotel's economic gains as their sole goal, viewing green management as excessively resource-intensive, leading to heightened financial costs and diminished economic returns. Moreover, a substantial number of consumers fail to grasp the significance of green hotels, resulting in significant dissatisfaction with hotels' green management measures, sparking a series of complaints. These consumer attitudes and behaviors also act as obstacles to the widespread adoption and implementation of green management practices in hotels.

3.2.2. Environmental pollution increases green costs and reduces service quality

The tourism industry is rife with pollutants and pollution sources, including wastewater from laundry, domestic sewage, noxious gases, plastic bags, disposable consumables, and more ^[7]. A typical hotel of a significant size can discharge at least 100,000 tons of harmful sewage per year, about 30 tons of sulfur dioxide, about 50 kilograms of smoke and dust, and about 3,100 tons of carbon dioxide into the air, which all these detrimentally affect the ecological environment. Therefore, the prevention and treatment of various pollution forms and waste in green hotels incur significant costs, leading to the indirect transfer of these expenses to customers. This can result in diminished customer loyalty and hotel occupancy rates. As a result, hotel operators may have a certain ambivalent attitude towards green management measures.

3.2.3. Insufficient investment in equipment and technology

Green facilities and equipment within hotels are often outdated, with low technological sophistication, impacting production efficiency, especially when financial resources are limited. Outdated technology and inadequate equipment can also contribute to significant environmental damage. The physical structures of green hotels demand more sophisticated architectural design to minimize energy consumption, covering lighting, cooling, heating, and energy consumption in kitchens and bathrooms. Poor architectural design can lead to increased energy consumption and have an adverse environmental impact.

3.2.4. Lack of government policies

In a society where the government takes a leading role, proactive government guidance and comprehensive promotion are pivotal for the advancement of green hotels. Government support holds an important place in this context. However, existing laws and regulations related to environmental protection are not yet comprehensive, lacking details, stringency, and effective enforcement. Legal support and policy guidance are unclear, and detailed regulations governing incentives and penalties are absent. This has resulted in low enthusiasm among hotel operators for the implementation of green management measures.

4. Strategies and recommendations for advancing the sustainable development of green hotels

While many green hotels have made significant strides in their development, they still grapple with various challenges. In response to these issues, pertinent strategies are proposed in this paper to foster the sustainable development of green hotels ^[8].

4.1. Hotel interior

4.1.1. Enhance monitoring and management of green hotels

Hotels should institute a more comprehensive green energy management system, execute efficient energy conservation management, collect data from various departments, and meticulously analyze it to improve energy auditing. This, in turn, will facilitate a more in-depth analysis of green operating systems, encompassing aspects such as the fresh air system, indoor temperature control system, and low-carbon development management system. Hotels must implement refined management practices, including double-sided use of office paper, turning off lights and air conditioning when unoccupied, reducing standby time for fax machines and computers, and promptly shutting down office equipment. In the realm of green development, the goal should be to accumulate incremental changes and engage in meticulous operational management.

4.1.2. Energy allocation and utilization

The rational use of energy plays a crucial role in hotel operations, and green hotels should increase the proportion of renewable resources used to reduce carbon emissions. The type of energy used plays an important role in carbon emissions. For instance, green hotels can harness renewable energy sources such as solar energy to store heat in the underground water layers for winter heating. Rainwater can be collected and reused, wind energy can be harnessed, all contributing to substantial reductions in carbon emissions.

4.1.3. Training for green hotel professionals

Professionals are indispensable to the development of green hotels. While energy-saving equipment and materials form the foundation, individuals possessing expertise in green hotel management are the backbone. Professionals in the realm of green hotels should embody the concept of green hotel design, possess an understanding of relevant low-carbon equipment, and be adept at guiding customers to comprehend and support green hotel management initiatives.

4.1.4. Strengthen green design

At the outset of a green hotel's design, the importance of incorporating eco-friendly design should be underscored. Rational green hotel design is crucial for long-term interests. Committed adherence to green energy-saving standards in technical applications, along with explicit planning for the proportion of renewable energy utilization, is essential. Furthermore, environmentally friendly and energy-efficient equipment should be employed, and efforts should be made to recycle waste heat wherever feasible ^[9].

4.2. Hotel exterior

4.2.1. Cultivate green awareness among customers

Integrating green management principles into the hotel's corporate culture is essential. Energy-saving guidelines and green promotion should be included in promotional materials. Regular training in low-carbon and environmental preservation should be provided to hotel staff. Encouraging consumer engagement in the hotel's green initiatives is crucial to helping customers gain a tangible understanding of green practices and

their significance. Special activities can be organized to encourage customer participation in low-carbon and green consumption.

4.2.2. Enhance promotion of green hotels

The use of modern and traditional media can be harnessed to create documentaries promoting green hotels. Social media platforms such as WeChat official accounts, TikTok, and other apps can be utilized to disseminate information about green hotels and low-carbon environmental protection. Inviting online influencers to endorse green hotels can boost their popularity. Through comprehensive publicity, green hotels can increase their visibility, which is beneficial for sustainable development.

4.2.3. Establish a green hotel communication platform

Creating a network of green hotel associations can serve as a bridge between hotels and governmental bodies. These associations can provide a communication platform for green hotels, facilitating inter-hotel communication, dismantling information barriers, advocating for green technology in the hotel industry, and helping governments devise supportive policies for green hotels ^[10].

5. Conclusion

This article takes the background of low-carbon tourism as the entry point, comprehensively reviews the relevant concepts and development status of green hotels, and elaborates on the level of standards and problems faced by green hotels. Furthermore, it offers a range of strategies and suggestions aimed at advancing the sustainable progression of green hotels. This encompasses enhancing the oversight and administration of green hotels, optimizing energy allocation and consumption, nurturing skilled personnel with expertise in green hotel management, and fortifying green design principles. It also emphasizes the importance of instilling eco-friendly principles among customers beyond the hotel's premises, intensifying the promotion of green hotels, and constructing a communication platform for green hotel stakeholders. In the context of low-carbon tourism, it is extremely important to improve the quality and development of green hotels. Green hotels should actively propagate low-carbon concepts to achieve an elevation in the quality of their eco-friendly services.

Disclosure statement

The authors declare no conflict of interest.

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