

**The Accessibility and Effectiveness of Zero-carbon Certification for Scenic Spots
- A Case Study of Huanghai National Forest Park**

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Executive Summary

This comprehensive study explores the accessibility and effectiveness of zero-carbon scenic spot certification, with a particular focus on the case of Huanghai National Forest Park. Many countries are emphasizing reductions in greenhouse gas emissions at the background of increasing global warming concerns. As the world largest emitter, China takes significant steps to peak its carbon emissions by 2030 and achieve carbon neutrality by 2060. With the dual carbon targets of China and the continuous rise of tourism, promoting green development has become the consensus of the industry. In this context, the creation of zero-carbon scenic spots has become a trend. Multiple scenic spots in China successfully gain the zero-carbon title through different certification standards produced by various certification authorities. As a new branch of certification area, whether such certification could be obtained by majority of scenic spots and effectively deliver emission reduction outcomes remains unknown.

This study chooses Huanghai National Forest Park, the first scenic spot that receives the zero-carbon certification from China Quality Mark, as a case study to evaluate the accessibility and effectiveness of the certification standard. Through interviews and field trips, an examination of Huanghai National Forest Park's successful attainment of zero-carbon certification is conducted. Findings reveal that while zero-carbon scenic spot certification can effectively reduce emissions and promote positive behavioral changes within scenic spots, achieving such certification remains a challenge for most scenic spots. Huanghai's success is attributed to its commitment to green construction, sustainable energy infrastructure, and rigorous management practices inherited from its state-owned forest farm background. However, financial constraints and the stringent certification standards compared with carbon neutrality pose significant barriers to other scenic spots seeking similar recognition.

Despite these challenges, the study offers recommendations to stakeholders interested in zero-carbon scenic spot certification, including policymakers, scenic spot operators, and certification agencies. The recommendations focus on promoting low carbon management and operations strategies for scenic spots, enhancing tourist awareness, controlling the use of disposable items, providing zero-carbon subsidies, and creating unified criteria for zero-carbon scenic spot certification. These recommendations aim to address concerns related to accessibility, effectiveness, and policy support, thereby promoting sustainable tourism practices.

While the study provides valuable insights, certain limitations must be acknowledged, including the small sample size and the short-term nature of the analysis. Future research endeavors should aim to overcome these limitations by incorporating larger and more diverse samples, extending analyses to encompass long-term effects, and accounting for the inherent differences across different operating models. In conclusion, the study emphasizes the importance of zero-carbon scenic spot certification in addressing environmental challenges within the tourism sector. By navigating the barriers and leveraging the opportunities identified in this study, stakeholders can work towards a more sustainable and environmentally responsible future for scenic spots.

1. Introduction

As the issue of global warming intensifies, countries are actively promoting reductions in greenhouse gas emissions. As the world's largest emitter, China bears important responsibilities (Lin & Sun, 2019) and has declared plans to peak its carbon emissions before 2030 and achieve carbon neutrality by 2060 (Xinhua News Agency, 2020). Green transformation and low-carbon development offer potentially effective pathways for China to simultaneously achieve economic development and environmental protection (Guo & Ren, 2023). China has implemented practices to reduce carbon emissions at national, regional, and industry levels, such as the implementation of carbon peak city pilots. In 2021, the State Council issued guidelines on carbon peaking and neutrality, with an emphasis on the integration of these goals into regional and local planning (Xinhua News Agency, 2021). As a result, all industries in China are confronting challenges related to conservation and emissions reduction, including tourism. To actively respond to central government policies targeting carbon emission reductions, green certification is gaining momentum across various industries, including tourism. According to the Chinese State Council (2024), in 2023, the number of domestic trips reached 4.891 billion, which had a 93.3% year-over-year increase. These statistics indicate the huge market potential of China's tourism industry. However, with such a rapid development, the carbon emissions resulted from transportation, accommodation, catering and tourism activities are also increasing year by year. Green transformation becomes an inevitable choice for the sustainable development of tourism industry. On this basis, scenic spot certification is gaining popularity in Chin. Various scenic spots have begun to promote the construction of low-carbon or even zero-carbon infrastructure in recent years. Although labeled as zero-carbon, it does not imply that such scenic spots emit no greenhouse gases. Instead, it means achieving net zero emissions by mitigating carbon emissions generated by human activities through practices such as emission reduction technologies and management (Lin et al., 2023).

Currently, there are two different approaches to zero-carbon certification in the market. One approach involves the calculation of carbon sinks and emissions to determine whether a scenic spot achieves carbon neutrality. The other approach utilizes various indicators to provide an integrated score. A few studies have attempted to calculate the carbon emissions and carbon sink capabilities of scenic spots. For example, Wang et al. (2016) evaluated the carbon sources and sinks of the Jiaoshan scenic spot, proposing suggestions for successful construction of a low-carbon scenic spot. Sun et al. (2019) evaluated the carbon footprint of Jiuzhai Valley and

its spatial distribution to improve its low-carbon management. In this study, we conduct a comprehensive assessment of the certification obtained by Huanghai National Forest Park in Yancheng City, Jiangsu Province.

Huanghai National Forest Park, hereafter referred to as Huanghai, received its zero-carbon scenic spot certification from the China Quality Mark (CQM) Certification Group in 2023. Formerly a state-owned forest farm, Huanghai boasts strong carbon sink capabilities and has adopted various measures to reduce emissions. With Huanghai's successful case as a focus of the study, we investigate the effectiveness and accessibility of the criteria for zero-carbon certification. We examined official certification documents and conducted interviews with people knowledgeable about the certification process. We find that Huanghai's success in zero-carbon scenic spot certification relied heavily on its original facilities, state-owned forestry background, and government support, which makes the certification less accessible to a more common scenic spot. Nonetheless, we find that the certification process has induced Huanghai to adopt behavioral changes that led to greenhouse gas emission reductions, indicating its effectiveness. Through an analysis of Huanghai's specialties, the possible barriers it encountered, implemented changes, and the certification workflow, this paper provides valuable experience for other scenic spots with similar emission reduction objectives. Furthermore, we provide multiple recommendations for governments to provide an added impetus to zero-carbon certification efforts.

2. Policy Background

As part of its efforts to mitigate climate change, China has proposed the establishment of 100 low-carbon pilot projects that are replicable and scalable during its 13th Five-Year Plan. These projects include a variety of initiatives, such as low-carbon cities, low-carbon parks, and low-carbon communities. Building upon this initiative, the government has proposed plans to optimize low-carbon pilots and implement near-zero carbon emission demonstration area projects, which are defined as regions with total net carbon emissions close to zero. Subsequently, many scenic spots have attempted to establish near-zero carbon demonstration zones. For example, in Xiamen City, the Dongping Mountain Area launched a project to advance towards the near-zero carbon target by improving forest land protection management (Xiamen Daily, 2020). In Zhejiang Province, the Kuocang Mountain National Forest Park established a smart mini-grid network for wind power storage to ensure the availability of green energy resources within the scenic spot (Jiang et al., 2021). Through green energy alternatives

and low-carbon practices, Kuocang Forest Park has gradually achieved its near-zero carbon goals. Similarly, in Sichuan Province, the Dujiangyan Scenic Spot pioneered a zero-carbon scenic spot construction model to promote low-carbon development. This model involves carbon emission reduction, carbon neutralization, and carbon disclosure. (Hongxing News, 2021).

Based on the success of the demonstration project, some cities have taken steps to establish certification indicators and standards for zero-carbon scenic spots, complementing the government's efforts to reduce emissions. The government of Xiamen City, for instance, issued a document specifying a list of criteria to be referenced in granting certificates for Zero-Carbon Scenic Spot. This evaluation criteria contains 5 level 1 and 23 level 2 indicators (Xiamen Ecological Environment Protection Commission, 2022). On March 21, 2023, the Association of Tourism Industry and Guohe Huaxia Urban Planning Institute held an online demonstration meeting on the project approval of "Zero-carbon Scenic Spot" and "Zero-carbon Hotel" group standards. The Huangshan Mountain Scenic Spot in Anhui Province devised the Zero-Carbon Scenic Area Creation Program of Huangshan Mountain Scenic Spot to promote the creation of a zero-carbon scenic area (Hu, 2023). This initiative aims to achieve its objectives through strategies such as vegetation carbon offsetting, green energy substitution, and green scene replacement. The emergence of zero-carbon scenic area certification in the market is a natural progression. This certification, a type of environmental labeling, aims to convey environmental information to stakeholders, thereby reducing the information gap between tourists and scenic areas (Amstel, et al., 2008).

3. Case Background

Huanghai National Forest Park, as stated by the National Forestry and Grassland Administration (2022), boasts a forest ecosystem spanning an area of 68,000 acres with a forest coverage of 90%. Currently, it is home to 628 plant species, 342 species of wild birds, and over 30 animal species. However, around six decades ago, Huanghai bore little resemblance to a national forest park or even a forested area. Originally established as a state-owned forest farm in 1965, Huanghai National Forest Park is located in Dongtai, a county-level city within the Yancheng prefecture-level city of Jiangsu province (Fig.1).

Figure 1: The Geographical Location of Yancheng City



(WorldAtlas, 2015)

Tracing back to its establishment, Huanghai National Forest Park was once a piece of saline-alkali land. Considering the high salt content in such areas, the growth and yield of most cereals and wood plants are greatly inhibited (Cao et al., 2022). Remarkably, this land became one of the largest planted forests in eastern China. Two major reasons contributed to this significant transformation. Firstly, in the 1960s, Dongtai faced an urgent need for wood for development, but purchasing wood required a substantial investment (Forestry Administration of Jiangsu Province, 2018). Besides, Yancheng City, located on the eastern coast facing the Yellow Sea, was prone to highly destructive storm surges and winds (Yancheng Municipal People's Government, 2011). Typhoons struck Yancheng city in the years 1949, 1956, 1960, 1962, and 1965, causing considerable damage (General Office of the People's Government of Yancheng, 2011). These geological challenges, coupled with Yancheng's location and recurring disasters, further motivated afforestation efforts. Consequently, the Dongtai County Committee decided to develop this coastal land, aiming to plant forests for self-sufficiency and reinforce sea walls to mitigate typhoon damage. Significant efforts were made to transform the saline-alkali areas into a forest, including extensive testing and technological innovations such as digging trenches to conduct salt exclusion, ultimately enabling species like poplars and ginkgos to thrive in Dongtai (Huanghai National Forest Park, 2021). In 2004, Dongtai Forest Farm was designated as a provincial forest park. In 2016, approved by the State Forestry Administration, Dongtai Huanghai Forest Park gained national forest park status, alongside recognition as a national 4A-level tourist attraction. This classification of tourist attractions in China includes five distinct levels: 5A, 4A, 3A, 2A, A, and 4A grade spots that meet national-level standards (Hu & Lu, 2024). Besides its 4A designation, Huanghai National Forest Park has received honors

such as "National Advanced Collective of Afforestation" and "National Advanced Primary-level Party Organization". Besides its thriving ecological environment, Huanghai has developed various commercial activities, including fishing, adventure parks, thematic music festivals, and marathons, and has established hotels within and around scenic areas. As a result, it now boasts over 3,000 rooms, with the tourism revenue and cultural and creative output value witnessing a growth rate exceeding 50% over the past two years (The People's Government of Dongtai, 2023).

To further align with low-carbon development and the practices of zero-carbon initiatives, in 2023, Huanghai National Forest Park successfully achieved the zero-carbon scenic spot certification under the guidance of the China Quality Mark Certification Group (CQM). Apart from Huanghai's exceptional natural conditions, another crucial factor contributing to its selection as the first certified scenic spot is the proactive promotion of green development by the local government. Firstly, Huanghai's administrative region holds a unique position within the Dongtai Coastal Economic Zone, established as the first deputy county office by Dongtai City in 2006. Upon its inception, the economic zone, initially named Dongtai Coastal Wetland Tourism Resort Economic Zone, refrained from launching any chemical projects for over a decade (Dongtai Municipal People's Government, 2021). Instead, it actively integrates ecological resources such as oceans, wetlands, and forests into the health and wellness industry for regional economic development. Additionally, Dongtai, along with higher-level governments, has implemented multiple policies aiming at promoting green ecological development. At the provincial level, in November 2022, the Standing Committee of the Jiangsu Party Committee adopted the Opinions on Supporting Yancheng to Build a Green and Low-carbon Development Demonstration Zone. Subsequently, a cooperation framework agreement on building a green and low-carbon development demonstration zone was signed by the Jiangsu Provincial Natural Resources Department and Yancheng City (Department of Ecology and Environmental of Jiangsu Province, 2022). In January 2023, the Yancheng Municipal Government convened a conference to promote the green and low-carbon development of the demonstration zone, with the aim of achieving national recognition as a low-carbon demonstration city by 2030. Dongtai, as one of the leading cities, actively participated in the exchange of ideas during the conference (Yanfu Popular Daily, 2023). Responding enthusiastically to Yancheng City's call, the Dongtai Municipal People's Government strives to establish Huanghai Forest Park as a model for national zero-carbon scenic areas (2023).

The selection of the certification agency was not arbitrary. CQM traces its roots back to the "China Certification Committee for Quality Mark," which was approved by the former State Bureau of Quality and Technical Supervision. It is a national certification mandated by the Chinese government to oversee third-party certification work in the country (Song, 1999). CQM's scope of operations includes certification services, training services, scientific research, policy research, and standardization. Zero-carbon Scenic Spot Certification is one of the certification services provided by CQM under the green and low-carbon section. In China, the credibility of such certification depends on recognition by governmental departments. This zero-carbon scenic spot certification, as stated by CQM, is developed under the guidance of the Jiangsu Provincial Market Supervision Administration. In addition, according to the Yancheng Market Supervision and Administration (2023), nine certification agencies, including CQM, formed the Green Certification Service Alliance in October 2023 to support Yangcheng's green, low-carbon, and high-quality urban development. This better explains why CQM was chosen as the third-party certification agency. For the certification process, the determination of the organizational boundary of Huanghai was based on the principle of control rights. This encompassed not only the scenic areas but also the surrounding hotels involved in the zero-carbon evaluation. This means that all emissions related to Huanghai's operations, such as catering, infrastructure, hotels, and energy consumption, were included in the quantification scope. With the guidance of CQM, Huanghai National Forest Park attained zero-carbon scenic spot status in China: the amount of carbon emissions removed by Huanghai National Forest Park has successfully balanced the amount it produced.

4. Methodology

The initial interest in this topic starts from causal conversations about current trends and practices in tourism. Due to the regular engagement with topics such as low-carbon initiatives and environmental policies, the concept of zero-carbon travel came up naturally. With online research using relevant keywords, it identified that many scenic spots were advertising themselves as zero-carbon scenic spots. This discovery prompted questions about the verification of such claims and the existence of established certifications for zero-carbon scenic spots. The effectiveness and accessibility of these certifications arouse a desire for further exploration.

The primary research method for this project is a case study chosen to facilitate a more detailed investigation into a specific case. This approach is particularly valuable for this project,

considering the limited number of scenic spots that successfully obtained the zero-carbon certification. According to Tellis (1977), a case study requires data from multiple sources to present details from the participants' perspectives. In this regard, interviews serve as a common source of evidence for case studies. Four scenic spots that claimed to be zero-carbon certified were first chosen. However, two of the scenic spots claimed that their certification was based on the abundance of trees in their mountainous areas, which naturally offset carbon emissions, and declined the interview requests. The other two scenic spots were unreachable by phone. Despite initial difficulties, a connection with Huanghai was made through a referral from a friend. This led to the successful scheduling of an interview. Subsequently, qualitative semi-structured questionnaire was prepared for further information collection. Semi-structured interviews provide flexibility to allow interviewer to pose follow-up questions as needed. Given that the focus of this project is on the analysis of the criteria and application procedures for zero-carbon certification, as well as the measures implemented by Huanghai National Forest Park, two interviewees were selected: managers from Huanghai and CQM, respectively. Before the interview, an interview guide was prepared in advance. Open-ended questions that align with the research objectives were formulated. These questions were pretested with peers to ensure clarity and impartiality and to encourage participants to actively share their opinions. Once the questionnaire was finalized, field trips and interviews were proceeded as planned.

A field trip was first arranged on Oct. 9th, 2023, to provide firsthand exposure to Huanghai National Forest Park, including natural resources, infrastructures, and functional facilities. Pictures were taken for later reference through sightseeing tours. Subsequently, a face-to-face semi-structured interview was conducted with the personnel in charge of certification within Huanghai National Forest Park. The interview lasted an hour and a half with an focus on Huanghai's motivations for achieving this certification and the difficulties encountered. Then, after several attempts and contacts, the second interview with CQM was scheduled three months later, on January 6th, 2024, based on the interviewee's availability. The interview with CQM lasted around an hour and a half as well discussing the rationale of the criteria and current certification market. With the interviewee's permission, the entire interview was recorded to facilitate later analysis. To maintain confidentiality and avoid potential ethical issues, the names of the interviewees were kept anonymous. The interviews were initially transcribed in Chinese and then translated into English. The findings will be interpreted within the context of the research question, integrating relevant documentation, archival records, and interviews.

Specifically, the analysis explores possible efficient improvement measures and evaluates the effectiveness and accessibility of zero-carbon certification criteria.

5. Findings

5.1 Accessibility

One of the evaluation criteria for zero-carbon certification is accessibility. As per the Oxford Popular Dictionary and Thesaurus (1998), “accessible” serves as an adjective synonymous with terms such as “approachable, at hand, attainable, available, close, convenient, handy, and within reach”. Similarly, the Swedish National Encyclopaedia (1998) defines “accessible” as the potential to participate in something desirable. Therefore, in the context of this report, “accessible” refers to the feasibility of other scenic spots aspiring to attain zero-carbon certification. Based on the case study of Huanghai National Forest Park, it becomes evident that the achievement of zero-carbon scenic spot certification is less accessible for other destinations. Huanghai stands out among scenic spots due to its unwavering commitment to green and low-carbon standards in construction and facilities. As the first recipient of this certification, Huanghai serves as a pioneer in emissions reduction within the tourism sector. However, the rigorous standards set by the Zero-Carbon Scenic Spot Certification program pose significant barriers to other destinations seeking similar recognition. Meanwhile, during the certification procedure, Huanghai considered abandoning some facility renovations for economic reasons. Simultaneously, Huanghai not only promotes the certification process but also establishes a zero-carbon management committee, which shows a top-down commitment to certification. Therefore, the requirements of the scenic area itself and the strict certification standards make it difficult for the wider tourism industry to obtain this certification.

5.1.1 Construction & Facilities

Due to heightened environmental awareness and policy directives, constructions and facilities within Huanghai National Forest Park have been built in adherence to green and low-carbon standards right from the very beginning of their construction and investment. A key strategy employed by this park is the construction of green buildings. Green building, as a strategy to reduce carbon emissions and promote environmentally friendly building practices, has been developing rapidly over the past few years. It aims to ensure that the design, construction, and operation of buildings are sustainable and energy-efficient. (Jaradat et al. 2024). According to documents and interviews conducted at the scenic spot, Huanghai has erected a green building

based on the Green Building Assessment Criteria (GB50378-2019). This building serves as a conference center for the scenic spot and boasts a remarkable 65% energy efficiency level. The entire structure utilizes an air-water heating system instead of conventional energy sources. These applications contribute to energy savings and the certification process: for zero-carbon scenic spot certification, certified green buildings in the scenic spots have an opportunity to become extra credit, which provides more channels for scenic spots to achieve certification.

Inspired by the principles of green building, the park prioritizes energy efficiency and sustainability in its internal facilities. According to interview sources, the park exclusively employs compact fluorescent lamps (CFLs) at a rate of 100%. Additionally, all internal transportation within the park operates on electric vehicles, completely eliminating the need for gasoline and diesel cars. This forward-thinking approach sets the park apart from other tourist destinations currently transitioning their vehicles from traditional to green energy sources. By bypassing this challenge from the outset, the park demonstrates exceptional foresight.

In addition to direct energy utilization for carbon reduction, the scenic area adopts various low-carbon practices, such as reducing sewage disposal intensity and enhancing water resource utilization. For instance, all buildings within the park incorporate water-saving faucets, toilets, urinals, and showers. These water-saving measures extend beyond the installation of efficient facilities to include the implementation of a rainwater and sewage division project and the installation of a rainwater harvesting system. By segregating rainwater and sewage, wastewater treatment becomes more energy and cost-efficient. Simultaneously, the harvested rainwater can be reused for irrigation, benefiting the park's flowers, plants, and trees. This comprehensive approach conserves both energy and natural resources, contributing to low carbon emissions and sustainability. While some of these tasks may not pose significant difficulties for other tourist destinations, undertaking construction and sewage system projects presents challenges for certain established and well-developed scenic spots, involving reconstruction and associated expenses.

While cost may not be a concern for some scenic spots, reconstruction poses a significant challenge for certain types of attractions, particularly those of a humanistic nature. Humanistic scenic spots encompass elements and factors that have emerged from the evolution and development of human civilization, including people's lives, cultural arts, historical relics,

ethnic customs, cultural landscapes, and social environment (Zhou, 2018). Examples include well-known sites such as the Forbidden City and Suzhou Gardens. Due to the protective nature of cultural relics within these spots, changes in internal buildings or facilities are often not easily feasible. Consequently, the implementation of green and sustainable construction and facilities of scenic spots could present a significant obstacle for others seeking zero-carbon certification.

5.1.2 Forestry Background

As outlined in the case background, Huanghai National Forest Park traces its origin to a state-owned forest farm. Since 1982, China has designated forest parks as diversification projects of state-owned forest farms (Yang, 2020). In 2014, the enforcement of the Complete Cessation on the Logging of Natural Forests (referred to as "Complete Cessation of Logging") further strengthened the ecological security and forest resource cultivation functions of these areas (Jiang et al. 2022). Subsequently, the transformation of the state-owned forest farm into a self-supporting public institution results in the absence of the supportive policies usually available to state-owned forest entities, as well as the autonomy and economic benefits enjoyed by enterprises and public institutions. This situation often leads to difficulties for these entities. (Alashan Zuoqi Science Technology and Forestry and Grassland Bureau, 2022). These circumstances promoted the transformation of forestry practices, offering Huanghai certain advantages in terms of certification.

State-owned forest farms are mandated to conduct comprehensive archives management, which includes basic data, survey results, analysis reports, monitoring records, and other documents related to forest resources (National Archives Administration of China, 2021). Moreover, the State Forestry and Grassland Administration issued the revised "Management Measures for State-owned Forest Farms," mandating adherence to structured archival procedures to establish comprehensive forest resource and management archives (State Forestry and Grassland Administration, 2021).

In addition, according to the CQM, as part of the park falls under the forest farm jurisdiction, the number of trees must either remain constant or increase annually, monitored by satellite surveillance under the State Forestry Administration. While a regulatory requirement, this system greatly streamlines data collection and estimation processes. This stringent

management system, coupled with the background of a state-owned forest farm, presents a challenge that other scenic areas may struggle to emulate.

5.1.3 Barriers to Data Collection

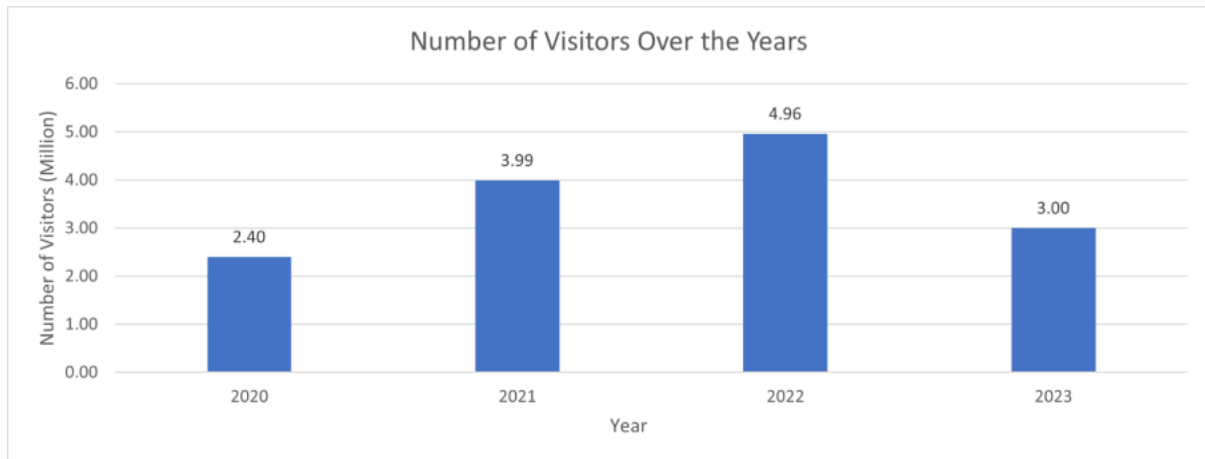
While Huanghai benefits from inherent advantages in background and infrastructure conditions and actively engages in emissions reduction practices, it still encounters obstacles in obtaining zero-carbon certification. This certification relies on comprehensive scoring, with detailed indicators for the evaluation of zero-carbon scenic spots, with data required for calculation. For example, in the interview with Huanghai, the issue of gas produced by the accumulation of fallen and decaying leaves was raised. Although Huanghai lacks specific carbon emission data from accumulated fallen leaves, it does have records of the amount of fallen leaves over certain periods. Additionally, based on its forestry background, the Forestry Bureau managing the forest of Dongtai maintains records of tree species and ages. Consequently, Huanghai utilizes the fallen leaves data provided by the Forestry Bureau per year and per tree species to estimate the leaf litter accumulation and calculate relevant carbon emissions. This method yields reasonably feasible data.

Similar challenges may arise for other scenic spots, potentially resulting in deductions. In non-natural scenic spots, where there may be fewer trees, daily cleaning data may not be documented. Conversely, purely natural scenic spots like mountain forests lack fallen leaf cleaning and associated data. Moreover, as trees in such environments grow naturally, there are no records of quantity or species, rendering estimation impossible. Consequently, data collection poses a significant challenge for certain scenic spots of this nature.

5.1.4 Financial Barriers

The economic performance serves as a crucial driver for pro-environmental behaviors (Li & Wang, 2022). Within the tourism sector, a primary indicator reflecting the economic performance of scenic spots is visitor arrivals. The visitor statistics for Huanghai in recent years are outlined below.

Figure 2: Number of Visitors Over the Years



As we've just concluded 2023, the data for that year is only approximate. Nonetheless, it's evident that there wasn't a significant increase in tourist numbers during 2023, the year Huanghai received its zero-carbon certification. Numerous studies have highlighted the positive correlation between green certification and consumers' perceived values. For instance, Wang et al. (2016) found that the availability of green certification has the greatest impact on consumers' perception of remanufactured automobile products and their likelihood to purchase them. Lee et al. (2018) concluded that obtaining green certificates in Sri Lanka's hotel industry could enhance consumers' perceived value, potentially leading to intentions to revisit.

However, this trend is not apparent in the case of tourism in Huanghai. Achieving certification has not directly translated into economic benefits for Huanghai. Moreover, meeting certification standards often requires significant investment, such as upgrading infrastructure and adopting green technologies, which can strain the financial resources of scenic spots. For instance, Huanghai's water recycling rate is relatively low, with water being directly drained instead of recycled. Although Huanghai acknowledges this weakness, practical steps have not been taken due to the costs associated with the purchase of relevant equipment. Thus, zero-carbon scenic spot certification poses a significant obstacle for scenic spots with limited economic investment and a focus on short-term economic returns.

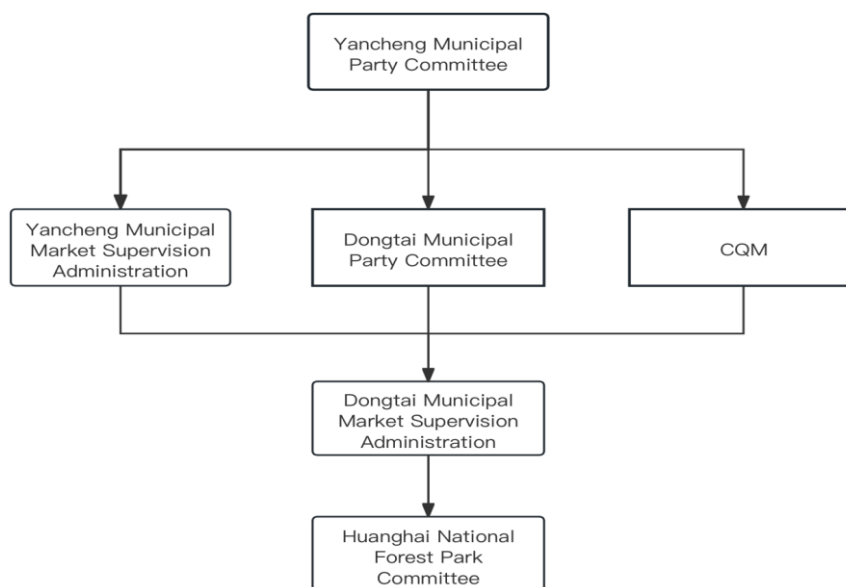
5.1.5 Government Intervention and Organizational Structure during Implementation

Through interviews with Huanghai and CQM, it becomes apparent that the recognition of the zero-carbon certification stemmed from government approval of the certification and its

standards., with government intervention in the market through regulatory means (Gao, 2019). The primary actors in the zero-carbon scenic spot certification process include the Municipal Party Committee and the Municipal Market Supervision Administration. The Municipal Party Committee, as the city’s highest governing body, serves as the leadership core and decision-making center, while the Municipal Market Supervision Administration is primarily responsible for comprehensive market supervision and management within the administrative region (Zhao, 2022).

A diagram (Figure 3) has been compiled based on information gathered from interviews and news reports to illustrate the promotion process of this certification. The arrows in the diagram represent the direction and sequence of the certification project promotion. As shown in the flowchart, the certification agency CQM initiated direct contact with the Yancheng Municipal Committee. Subsequently, the Yancheng Municipal Party Committee, as the governing body responsible for the entire Yancheng City, identified Huanghai for zero-carbon scenic spot certification. The project was then swiftly advanced by the Yancheng City Market Supervision Administration. Additionally, the Dongtai Municipal Party Committee collaborated with the Yancheng Market Supervision Administration in this initiative. Following this, the Dongtai Market Supervision Administration received directives from the Dongtai Municipal Committee, with responsibility for implementation delegated directly to the Huanghai National Forest Park Committee. As the supervisory unit, the Dongtai Market Supervision Administration oversaw and promoted the project.

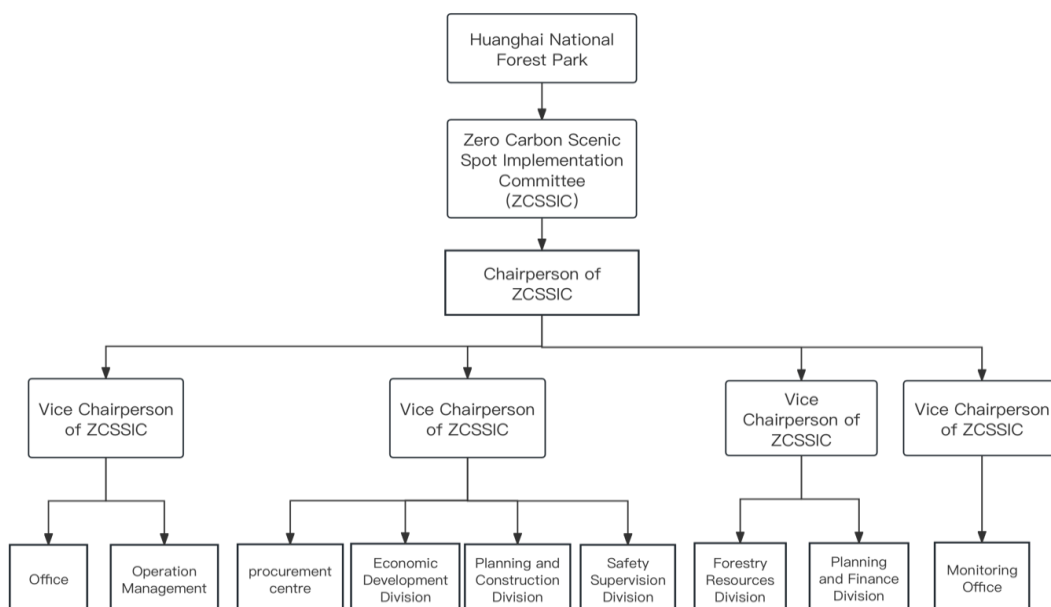
Figure 3: The Process of certification’s Promoting



Benefiting from a top-down management approach, Huanghai became the pioneer scenic spot in China to obtain this zero-carbon certification. The direction of implementation, whether bottom-up or top-down, inter-departmental cooperation and coordination and the attitudes of the authorities toward zero-carbon certification are crucial for successful implementation. The adoption of the bottom-up approach, without the support and promotion from higher government authorities, may subject the scenic spot to prolonged examination and approval processes from higher authorities.

In response to these dynamics, Huanghai established a Zero-Carbon Scenic Spot Implementation Committee (ZCSSIC). Figure 4 illustrates the organizational structure of the committee, with arrows indicating the flow of authority to the next level. This committee’s management structure is divided into three levels, each overseen by a higher authority. At the first level sits the Huanghai National Forest Park Committee, responsible for the promotion of zero-carbon certification and the delivery of instructions from higher levels to lower levels. The second level is represented by the Chairperson of the Zero-Carbon Scenic Spot Implementation Committee, primarily tasked with the implementation of tasks assigned by superiors and the management of tasks among subordinates. Finally, at the last level, four Vice-Chairpersons of the Committee manage different departments such as the office, operation management, procurement center, monitoring office, and others.

Figure 4: The Organization Structure of the Zero-Carbon Scenic Spot Implementation Committee



The integration of different departments within the scenic spot ensures smooth progress during the certification process. Procurement department staff are familiar with equipment energy efficiency levels, forestry resource personnel are knowledgeable about the plants in the scenic spot, and planning and construction unit staff have a comprehensive understanding of construction structure within the area. This arrangement facilitates the compilation of different types of data during the certification process, potentially expediting its completion. Additionally, after successful certification, the ZCSSIC continues to positively influence the sustainability of the scenic spot by maintaining zero-carbon emissions and exploring new carbon initiatives for improvement. Therefore, establishing a ZCSSIC could prove to be a useful strategy for other scenic spots seeking zero-carbon certification.

However, there are barriers to overcome during the establishment phase of the ZCSSIC. Chinese government organizational structure requirements mandate compliance with laws, clear role definitions, defined responsibilities, and proper management procedures (Ren, Wan, 2020). The establishment of a project committee involves applications to government departments, clarification of responsibilities, and appointment of management personnel. This process engages multiple government departments such as the Municipal Party Committee, Market Supervision Administration, and Personnel Management Department. Opposition encountered in the application and approval process can increase the difficulty and the likelihood of failure. The success of Huanghai stemmed from top-down promotion and unified awareness of zero-carbon initiatives across all levels. Under normal circumstances, a bottom-up application system and uncertain zero-carbon awareness can hinder other scenic areas from certification application.

5.2 Effectiveness

It is crucial to evaluate the effectiveness of existing certification mechanisms. Effectiveness, in this context, refers to the quality of the outcomes delivered. Different approaches could be used to assess effectiveness, including problem-solving, goal attainment, and behavioral, process, constitutive and evaluative effectiveness (Tikina & Innes, 2008). This paper focuses on problem-solving and behavioral, constitutive and evaluative effectiveness.

This section delves into how effectively scenic spots mitigate their potential negative environmental impacts and compares their effectiveness to other mechanisms. The zero-carbon scenic spot certification has the potential to raise awareness of existing environmental problems

among scenic spots and promote positive behavioral changes, even if it does not elicit strong reactions from tourists. Also, it could more effectively reflect a actual mitigation measures of a scenic spot. Therefore, the zero-carbon scenic spot certification can be considered an effective mechanism overall.

5.2.1 Emission Reduction Performance

The problem underlying the operations of scenic spots is straightforward: the release of greenhouse gases. As a major contributor to global warming and climate change, this phenomenon requires effective control measures. Hence, the promotion of certification adoption serves as a response to this imperative. Zero-carbon scenic spot certification serves as a catalyst for scenic spots to make progress and achieve persistent improvements. Since the indicators involved cover various specific areas, such as the proportion of new energy vehicles and water-saving instruments, scenic spots are compelled to undertake targeted upgrades in most cases. For instance, the installation of water-saving faucets and fluorescent lamps represents a one-time investment with substantial long-term benefits. Although these upgrades entail upfront costs and may initially be more expensive than regular appliances, their reduced energy and water usage can significantly reduce CO₂ emissions. The practices required by certifications are expected to continuously improve environmental sustainability.

Furthermore, subsequent supervision plays a crucial role. Under certification issuance, details such as the reporting year, greenhouse gas emissions volume, and clearance rate are documented. While evaluation is based on a specific reporting year, CQM, as the certification agency, continues to monitor Huanghai's emission reduction performance. Within the evaluation criteria lies an indicator called regular review and improvement, which examines whether scenic spots conduct annual reviews of their zero-carbon target achievement, management and operational performance and implement necessary improvements. According to Huanghai's zero-carbon management manual, various zero-carbon targets are established for subsequent years, including maintaining or reducing annual CO₂ emissions equivalent from facilities and increasing forest carbon removal by 0.5 - 1% annually, ensuring that the ratio between removal and emissions remains above 99.5%. Such follow-up supervision provides scenic spots with added motivations to consistently contribute to emission reductions to maintain their certifications.

However, perfection is unattainable. While zero-carbon certification serves as a driving force for emission reduction, there exists a potential loophole known as carbon leakage. Associated with emissions crossing international borders, in this context, carbon leakage refers to emissions escaping the defined operational boundaries of scenic spots. One typical example is the physical location of scenic spot parking lots. According to the interview with CQM, emissions from transportation within a scenic spot's operational boundary are accounted for, whereas those originating from parking lots outside the scenic spot are not. Despite the existence of these emissions, their exclusion from the evaluation scope raises concerns about their impact on final data results. Nonetheless, net-zero carbon emissions are just one indicator of certification. Additionally, scenic spots have limited control over transportation modes chosen by tourists, as noted in Huanghai's interview. Therefore, overall, zero-carbon scenic spot certification is beneficial to long-run carbon reduction and environmental sustainability within scenic spots.

5.2.2 Changes in Operation Behaviors

Behavioral effectiveness, as the term suggests, evaluates the changes resulting from certification. This could be analyzed from various perspectives. One prominent behavioral change observed in pursuit of zero-carbon certification is the procurement of energy-efficient equipment. Nowadays, most appliances come with the China Energy Label, an informational tag indicating the product's energy efficiency level. This label aims to equip users and consumers with essential information to make informed purchasing decisions and opt for energy-efficient products. As noted by Huanghai, instead of seeking cost-effectiveness, they now consider the energy efficiency level when acquiring equipment. A higher efficiency level means less energy is required to achieve the same outcome, thereby reducing pollution generated (Energy Star, n.d.). The shift in awareness and preference towards energy-efficient, environmentally friendly products represents a positive behavioral change spurred by certification.

Furthermore, Huanghai had made operational adjustments within its hotel. With four hotels within its premises, feedback from CQM indicates relatively high electricity consumption. To address this, Huanghai has implemented internal changes. For instance, they now provide guests with a single room card to minimize additional electricity consumption when leaving their rooms. Additionally, Huanghai has transitioned to providing degradable disposable daily necessities instead of conventional disposable products. These interventions in tourists'

behaviors and the adoption of more sustainable supplies underscore the positive behavioral changes catalyzed by certification.

- 5.2.3 Awareness of Issues

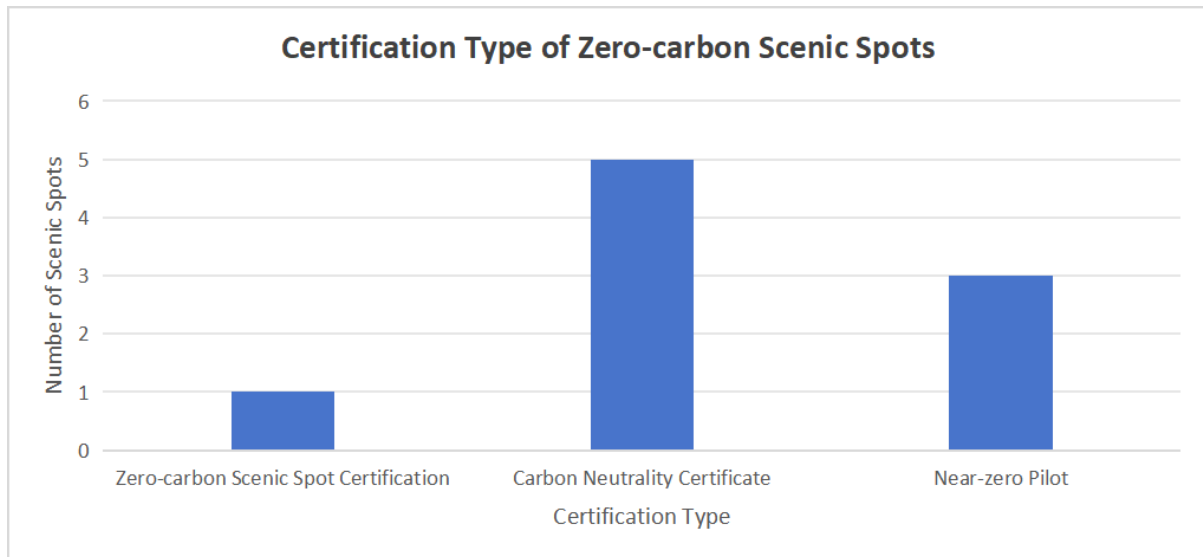
Constitutive effectiveness serves as an indicator to gauge the awareness and acceptance of a mechanism by social groups (Tikina & Innes, 2008). It's evident that the certified party gains a deeper understanding of the potential operational challenges and becomes more knowledgeable about possible effective practices and management approaches, as discussed in the preceding sections. From the scenic spot's perspective, zero-carbon scenic spot certification could achieve constitutive effectiveness. However, considering another social group involved--the tourist--the effect is less pronounced.

Firstly, as highlighted in the financial barrier section, there has been no significant increase in the number of tourists after the issuance of the certification. While the number of tourists does not fully reflect their responses, it is speculated that zero-carbon certification has not garnered much attention from tourists. Additionally, Huanghai clarifies that they do not prioritize the zero-carbon attribute as a focal point of publicity. According to the interview given by Huanghai, given that zero-carbon is a relatively new concept, many tourists lack a comprehensive understanding and thus fail to make active responses, making vigorously advertising unwise. While limited advertisement might hinder information acquisition among tourists, the crux here is that advertising zero-carbon alone has a limited effect without relevant knowledge. Education essentially enhances constitutive effectiveness in this regard.

5.2.4 Zero-carbon Certification VS. Carbon Neutrality

This part is about evaluative effectiveness. After a search for the term “zero-carbon scenic spot” on Baidu, one of the largest search engines in China, on February 5th, 2024, the information about all the scenic spots described as zero-carbon on the first 10 pages is compiled in the table below (Table 1).

Table 1: The Certification Type of Zero-carbon Scenic Spot



Based on the table, most scenic spots opt for carbon neutrality certification. This raises the question of which certification—zero-carbon or carbon neutrality—delivers more effective and sustainable outcomes. As previously discussed, the difference between them lies in their inclusion of specific indicators across different categories. For carbon neutrality, in addition to carbon reduction, leveraging scenic spots’ carbon sink capabilities could prove to be an effective approach. Take Ningbo Shangliang Gang Resort Area as an example, which received carbon neutrality certification from the China Beijing Green Exchange. Its forest serves as a substantial carbon sink. The carbon sinks generated by its forest (4445.98t) significantly exceeded the carbon dioxide emitted (1711.07t), showcasing remarkable carbon neutrality achievement (MeiLiZheJiang, 2022). While the resort implemented certain energy-conserving practices, its mitigation efforts beyond carbon neutrality remain undefined. Thus, the calculation of net carbon emission may not provide a useful reference value for other scenic spots, given the high carbon sink estimation.

In contrast, zero-carbon scenic spot certification views carbon neutrality as just one among several indicators, rather than a veto standard. It also considers additional factors, such as the proportions of new energy vehicles and the implementation of water-saving instruments. Whether this certification is issued depends on the overall weight assigned to each included indicator. This approach encourages scenic spots to implement emission reduction measures. For instance, Huanghai, despite its adoption of electric vehicles and LED lights and significant carbon sink capabilities, still faces challenges in the reuse of reclaimed water. Another major difference is that carbon neutrality certification allows for the purchase of carbon emission

credits. For instance, Juxian Island obtained its carbon neutrality certification through the China Certified Emission Reduction (CCER) program. CCER refers to voluntary emission reduction projects and carbon offsetting programs, wherein projects capturing carbon reductions could earn corresponding credits, which can be sold to cover up to 5% of an emitter's compliance obligations" (Lican, 2023). From the seller's standing point, promoting carbon emission reduction through various approaches such as forestry and renewable energy enables them to simultaneously meet both economic and environmental objectives.

Both certification types offer benefits. The potential purchase of carbon emission credits under carbon neutrality certification could stimulate liquidity in China's carbon market and promote voluntary emission reduction. However, scenic spots cannot guarantee that they have implemented emission reduction practices, either by reducing emissions at their sources or by sequestering emissions as carbon sinks, through this approach.

6. Recommendations

Considering the limited accessibility of the certification, concerted actions are necessary to promote this certification mechanism and invigorate the market. Recommendations are provided to stakeholders interested in zero-carbon scenic spot certification, including policymakers, scenic spot operators, certification agencies and others; these recommendations aim to address concerns related to both the scenic spots and certification agencies while also considering potential policy support.

6.1 Promoting Low Carbon Management and Operations

From the operation perspective, Huanghai serves as a model for other scenic spots to follow. Its comprehensive approach to low-carbon management addresses various emission sources, including building constructions, transportation, and carbon sinks. In terms of scenic spot management and operation, promoting green buildings could be a key strategy towards sustainability and zero-carbon certification. In the long run, green building initiatives promise both financial and environmental advantages, including enhanced energy efficiency, improved indoor environmental quality, and reduced waste, pollution and operation costs (Kats, 2003). Furthermore, energy utilization efficiency is a crucial factor. This objective can be pursued through the adoption of energy-saving vehicles, lighting, and equipment, thereby further reducing energy consumption and greenhouse gas emissions. Lastly, the establishment of a zero-carbon implementation committee could be a good model. A dedicated task force could

clarify and communicate responsibilities and authority related to zero-carbon scenic spots, facilitating effective management. Such collaborative efforts prove particularly important during the zero-carbon certification process, wherein relevant data must be sourced from different departments. Consequently, for newly developed scenic spots, the implementation of green and sustainable measures such as low-carbon management and operations is strongly recommended. Similarly, established scenic spots can leverage this approach to identify areas for improvement and explore innovative green solutions. While the specific nomenclature may vary, establishing a zero-carbon organization can be applicable to most entities aiming to achieve the goal of zero-carbon scenic spots.

6.2 Enhancing Tourist Awareness

The environmental awareness of tourists mitigates carbon emissions in the tourism industry (Kachel and Jennings, 2010). As the interviewee highlighted, tourists have multiple channels to contribute to emission reductions, such as food waste minimization. Despite efforts by Huanghai to promote food waste avoidance and implement penalties for excessive waste generation, these measures have not been widely adopted. Many tourists lack a comprehensive understanding of zero-carbon tourism and the detrimental effects of carbon emissions, often unknowingly engaging in practices that contribute to environmental degradation during their travels. Given that tourists are significant emitters, it is crucial to enhance public environmental awareness and encourage environmentally friendly, low-carbon behaviors.

Environmental education is an effective approach that can take diverse forms, including lectures, outdoor activities, and simulation scenarios. Through environmental education, the public could gain an understanding of the environmental challenges the world faces and make informed decisions and behaviors (EPA, 2023). Additionally, financial incentives could motivate low-carbon behaviors among the public. For instance, certain areas in China have implemented a carbon-inclusive platform to quantify emission reductions of low-carbon behaviors, spanning areas such as transportation, consumption, and tourism (Green Carbon, 2022). This platform rewards individuals with credits for participation in low-carbon activities, which can be exchanged for financial benefits such as discounts and gifts. By incentivizing a low-carbon lifestyle, tourists are encouraged to adopt sustainable practices, thereby reducing the pressure on scenic spots to cut emissions.

While some cities in Jiangsu, like Suzhou and Nanjing, have initiated trial carbon-inclusive programs, Yancheng has not launched any relevant platforms. Governments should promote the adoption of carbon-inclusive systems by verifying the data availability of each scenic spot and increasing public awareness through traditional media and the internet. However, carbon inclusion alone is insufficient. Governments should introduce and popularize policies targeting tourist behaviors to address changes in energy consumption effectively.

6.3 Controlling the Use of Disposable Items

According to Chan and Lam (2021), plastic toiletries are the primary contributors to solid waste in hotels. Converting hotel disposable items into degradable alternatives could effectively alleviate environmental pollution. Another strategy is to limit the provision of hotel supplies. Specifically, hotels should only provide disposable items such as toothbrushes and travel-sized bottles of body wash and shampoo upon guest request rather than proactively providing them. Several cities, including Shanghai, Guangzhou, Beijing, and Yancheng, have already imposed restrictions on the distribution of disposable items. By reducing the use of disposable items, waste production could be curtailed. This aligns with environmental protection objectives and encourages the adoption of an eco-friendly lifestyle.

However, such policies may inconvenience consumers and influence their hotel choices. Thus, it is important for governments to rigorously enforce these regulations to ensure consistency across all hotels. Stringent supervision is essential to prevent some hotels from the provision of disposable items to satisfy customer demands. Additionally, there have been discussions regarding charges for these supplies instead of free supplies (Luo, 2020). Government authorities should closely monitor market reactions to determine whether a paid-use model should be further promoted.

6.4 Zero-carbon Subsidy

A subsidy usually refers to the cash or privilege given by the government to support individuals or businesses (CFI, nd). As mentioned previously, Huanghai, as a scenic spot responsible for its own financing, often faces challenges in prompt decision-making about equipment purchases due to financial constraints. The transformation of scenic spots often requires new technologies and equipment, leading to increased investment costs. However, different scenic spots boast varying economic strengths, which might slow down the certification process. Other scenic spots may likely encounter similar financial challenges.

Subsidies could be instrumental in financial burden alleviation. Various types of subsidies might be useful in this case. For instance, Guangzhou launched the Guangzhou Green Food Certification Subsidy Implementation Plan (trial) in 2021 to provide policy support. Under this plan, a subsidy of 30,000 yuan is offered for a new certified product, while a series of products can receive up to 200,000 yuan in subsidy (Bureau of Agriculture and Rural Affairs of Guangzhou Municipality, 2021). Governments could implement a similar mechanism for zero-carbon scenic spot certification to incentivize scenic spots and alleviate their financial burdens.

Another possible approach is to subsidize tickets. Take Shanxi as an example. In 2022, to address challenges faced by the tourism industry, Shanxi implemented a provincial A-level scenic spot ticket preferential activities plan. Under this plan, A-level scenic spots are encouraged to offer at least a 20% discount on entrance tickets, with twenty percent of the final ticket sales subsidized at the provincial level (Finance Department of Shanxi Province, 2023). Governments could adopt a similar subsidy mechanism specifically targeting scenic spots that successfully achieve zero-carbon certification.

Based on the interview and data provided by Huanghai, the attainment of zero-carbon scenic spot certification does not necessarily lead to an increase in tourist numbers. However, lower ticket price could potentially attract more tourists (Engenio-Martin & Inchausti-Sintes, 2016). Ideally, ticket subsidy could significantly increase visitor flow and comprehensive consumption levels related to accommodation, dining, and other services. This could serve as an effective promoter for zero-carbon practices, enhance the overall economic benefits of scenic spots, and promote sustainable economic development in cities.

6.5 Unified Criteria for Zero-Carbon Scenic Spot Certification

To enhance the recognition of zero-carbon scenic spots as widely embraced products, it is imperative for policymakers to not only focus on the efforts of individual scenic spots but also prioritize the assurance of credibility in the zero-carbon scenic spot certification process within the market. Throughout the research period addressed in this report, the CQM emerged as a pioneering agency in China that issues zero-carbon scenic spot certification by independently developed criteria. However, the non-exclusivity nature of these criteria leaves room for alternative certification agencies, each with distinct sets of criteria. Consequently, this proliferation has led to a myriad of certifications flooding the market, raising concerns about the integrity and reliability of zero-carbon scenic spot certifications.

As highlighted by Fond (2002), the proliferation of various certifications within the market can lead to consumer confusion. Therefore, it is imperative to explore and establish a unified set of criteria for certification, mandated by the government based on international certification standards. Such a unified approach would not only enhance the credibility of certifications within the market but also mitigate potential discrepancies arising from differing international standards for zero-carbon scenic spot certification in the future. Furthermore, for already certified scenic spots, adherence to a unified set of certification criteria can significantly reduce the risk of non-compliance with certification standards. Therefore, it is incumbent upon policymakers to conduct a comprehensive review of existing certification standards and embark on the development of unified certification criteria and systems; such endeavors represent a prevailing trend and a responsible approach that ensures the credibility and integrity of the market for zero-carbon scenic spot certifications.

7. Conclusion

This article provides a qualitative analysis of the accessibility and effectiveness of zero-carbon scenic spot certification, with a focus on the case of Huanghai National Forest Park. Huanghai's achievement as the first scenic spot to obtain zero-carbon certification provides valuable insights into the accessibility and effectiveness of this certification. Though the certification effectively reduces emissions, numerous barriers may hinder other scenic spots from obtaining the same certification. Huanghai's success highlights the significance of green construction and sustainable energy infrastructure, along with its rigorous management system inherited from its background as a state-owned forest farm. However, financial constraints pose a significant hurdle, as the certification does not directly boost ticket sales, and investment in infrastructure upgrades is necessary to meet certification criteria. The top-down support from government entities and the establishment of a zero-carbon management committee present both challenges and opportunities for other scenic spots.

Regarding effectiveness, the zero-carbon scenic spot certification demonstrates positive impacts across several dimensions: problem-solving, behavioral effectiveness, constitutive effectiveness, and evaluative effectiveness. Huanghai's mitigation practices and equipment setup have promoted emission reduction behaviors and fostered carbon reduction awareness. Unlike carbon-neutral certification, which allows carbon trading and might heavily rely on a scenic spot's carbon sink capabilities, the zero-carbon scenic spot certification encourages internal emission reduction measures, better reflecting actual mitigation efforts. Nevertheless,

imperfections within the certification process, such as carbon leakage and limited impact on tourist behaviors and awareness, indicate areas for improvement in the certification process. In conclusion, despite the limited accessibility of zero-carbon scenic spot certification, it effectively promotes positive behavior changes among scenic spots and achieves ultimate emission reductions.

This study further provides recommendations for the attainment of zero-carbon certification for scenic spots. Firstly, operational management strategies should focus on long-term low-carbon practices and the adoption of green and sustainable products and facilities as part of operational management strategies. Secondly, it is crucial to enhance visitor awareness of carbon reduction through education, platform promotion, and incentive policies. Thirdly, policies should be implemented to mandate hotels not to proactively provide disposable items so as to reduce carbon emissions at the source and promote eco-friendly practices. Fourthly, zero-carbon subsidy policies, such as subsidies for certification and tickets, can incentivize scenic spots to pursue zero-carbon initiatives. Lastly, it is advisable to exploring and establishing unified criteria. The aim is to foster consumer confidence and ensure the credibility and integrity of the market for zero-carbon scenic spot certification.

While our case study has yielded valuable insights, it is important to recognize several limitations. Firstly, the relatively small sample size limits the breadth and depth of our analysis. Conclusions drawn from such a limited group may not fully represent the diverse range of perspectives and experiences within the broader population. Therefore, the findings may be constrained by these limitations and may not fully capture the phenomena under investigation. Secondly, we acknowledge the time constraints in our analysis. The zero-carbon scenic spot certification is a relatively novel system, meaning that our data only spans the past year. Therefore, our analysis may only reflect short-term effects. A sole focus on short-term outcomes may overlook the broader, long-term consequences. Failure to account for these lasting impacts could result in an incomplete understanding of the effectiveness and potential drawbacks of zero-carbon scenic spot certification. Moreover, it is important to recognize the inherent differences between different spots. Each spot may have its own unique operating model, leading to variations in the efficacy of implemented measures and their impacts across locations. Our analysis does not fully capture the intricate nuances of zero-carbon scenic spot implementation within the frameworks of diverse operating models.

In light of these limitations, it is imperative to interpret our findings within this context. We acknowledge that future research will need to undertake more comprehensive investigations to address these limitations. Subsequent studies could explore alternative methodologies to incorporate larger, more diverse samples, extend analyses to encompass long-term effects, and account for the inherent variability across different operating models. By addressing these limitations, future research holds the potential to offer deeper insights and contribute to our understanding of zero-carbon scenic spot practices.

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Appendix

1. Zero-carbon Scenic Spot Certification


<p>★★★★★</p> <h3>Zero-Carbon Scenic Spot Certification</h3> <p>Certificate number: CQM2023ZCTA001</p> <h3>Dongtai Huanghai National Forest Park</h3> <p>Name of applicant: Dongtai Huanghai Forest Investment and Development Co., LTD</p> <p>Registered address of the applicant: No.8, Hualin Road, Dongtai Coastal Economic Zone</p> <p>Address: No.8, Hualin Road, Dongtai Coastal Economic Zone</p> <p>Greenhouse Gas reporting year: January 1, 2022 - December 31, 2022</p> <p>Greenhouse gas emissions: 7,695 tCO₂e</p> <p>Greenhouse gas clearance rate: 100%</p> <p>According to the standard of CQM/E-RZ-FW-ZY-01-002 Evaluation Specification for Zero Carbon Scenic Spot Requirements, assessed as zero-Carbon Scenic Spot.</p> <p>Rating: 5 stars</p> <p>Issue date: 26th April, 2023</p> <p>signer: </p> <p></p> <p><small>CHINA QUALITY MARK</small></p> <p><small>9 idea city high man district training light according to 1 body, 0.01058411888</small></p>

2. Glossary

Huanghai National Forest Park 黄海国家森林公园

Jiaoshan 焦山

Jiuzhai Valley 九寨沟

Dongping Mountain 东坪山

Kuocang Mountain 括苍山

Dujiangyan 都江堰

Huangshan Mountain 黄山

Ningbo Shangliang Gang Resort 宁波商量岗旅游度假区

Juxian Island 聚仙岛

3. Field Trip Pictures of Huanghai











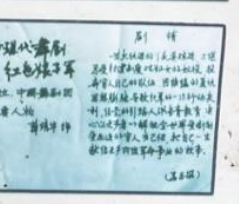
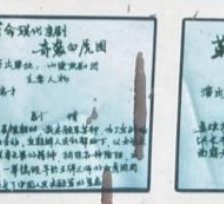
知识青年到农村去 黄海森林公园



十年的“文化大餐”

我眼中的样板戏

评价样板戏，
 * 样板戏都是经过千锤百炼不断完善的，它有一个“度”，“度”是指剧本的质量和水平，但评价的标准，并不完全在于剧本的质量，更在于它是否深入人心，是否深入人心，这是评价样板戏的关键。
 * 样板戏大都改编自文学作品，但是它的改编不是对原作，而是进行了再创作，使剧本更符合时代的要求，这是它的成功之处。
 * 八个样板戏中，剧情最好的是《白毛女》和《红灯记》，它最突出的是《沙家浜》，《白毛女》和《红灯记》是八个样板戏中最具代表性的，也是八个样板戏中最具代表性的。
 * 八个样板戏中最具代表性的是《白毛女》、《红灯记》、《沙家浜》、《智取威虎山》、《奇袭白虎团》、《红色娘子军》、《杜鹃山》、《海港》。
 * 八个样板戏中最具代表性的是《白毛女》、《红灯记》、《沙家浜》、《智取威虎山》、《奇袭白虎团》、《红色娘子军》、《杜鹃山》、《海港》。
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生态建设示范基地

江苏省生态文明研究与促进会
东台市环境保护局
江苏黄海海滨国家森林公园
二〇一七年八月

获奖证书

江苏省东台黄海国家森林公园区：

在第四届中国国家旅游年度榜单评选中
荣获“最佳生态旅游目的地”奖。
特发此证。

证书编号：2019CNT1152



二零一九年十一月十六日

荣誉证书

HONGKONG GREEN SCENE

授予：江苏省黄海海滨国家森林公园

中国绿色生态景区



中国林业与环境促进会



人民日报·(中国绿色景区)



国家发展改革委



美丽中国绿色生态景区
评比委员会
二〇一八年一月

4. Interview Transcript

#1 Huanghai National Forest Park

October 9, 2023, 2:26 p.m

Q: We are students from Duke Kunshan University. Our major is environmental policy. We take the topic of zero-carbon scenic spot as our master project. We want to confirm you're willing to have this interview with us.

A: Yes.

Q: Our first question is what advocated our scenic spot to be certified as a zero-carbon scenic spot in the first place.

A: Zero-carbon is definitely a good thing, right, for our scenic spot, for the whole city, or even for the whole Jiangsu Province and the whole country. Huanghai National Forest Park has been certified as a zero carbon scenic spot, which is definitely a good thing for the future development of our spot. And because it is a forest park, there is a great amount of vegetation, as well as the wild animals and plants which is one good hardware condition.

Q: Do we have any policy support? For example, if we get the zero-carbon scenic spot certification, we can get some preferential treatment or subsidies.

A: Well, I'm not sure about that. I think there is. Our leaders should talk about some preferential policies when they report to upper level city or province, but I am not clear about the specifics.

Q: Is this third party a fixed third party or did we find it by ourselves? Or the government directly pointed out that their certification is more authoritative.

A: CQM, a third-party certification body, has a close cooperation with the government. For example, some provincial standardized services are all certified by them. The authority is guaranteed. Therefore, after weighing and comparing several companies, we choose them for our certification.

Q: At present, does the certification of this zero-carbon scenic spot only represent some corporate activities, or does it have certain authority and is also recognized by the government? It is not a national standard like 5A scenic spots.

A: The government must recognize it, because they are actually a relatively professional certification system. In the end, all these materials have to be reported to the province level. For example, the market supervision bureau needs to review all the materials. We began to do this certification because of the government's suggestion. There is an approval from the government. It's a mutually beneficial process.

Q: Did you encounter any problems during the certification process? For example, what are their certification standards? Have you encountered any difficulties? What are they?

A: Actually, there are some difficulties. Because this certification has a very detailed grading scale. There are some numbers that we can actually provide. It also requires things like kitchen waste, or the accumulation of fallen leaves that produce that carbon dioxide. The data related to this amount of food waste, or this amount of gas produced by decaying leaves, is something we can't provide on our side. It's a bit difficult. We probably only have an estimate of how many leaves are produced per day based on the age of the leaves. Forestry Resources probably know a little bit more about such information. And then we use that data to do a calculation to figure out how much greenhouse gas is being produced. That's the only way to calculate it. We can't measure it directly. This one might be a little tricky.

Q: You mentioned the forestry department, so the forestry department will also help you to provide some data that they have to assist with certification.

A: Because zero-carbon requires a lot of data on forestry. Many departments are involved in this case.

Q: So when we do this certification, quite a few departments will get involved and actively help.

A: Yes, because our certification also covers hotels. The hotel is also within the whole scope. For instance the disposable products hotels use. Whether they are biodegradable, will also be included in the final score. Or whether the toilets are energy and water saving. These factors are included. We have an economic development department that runs the hotel, and they're the ones that are going to give us that data. There are some bonus points for zero-carbon scenic spot, like if you have a green building. A green building that meets the certification criteria could help us get bonus points for that. For example, the International Conference Center we have built now is a green building, which is related to the planning and construction Department. They can provide some documents or materials related to the green building.

Q: You have mentioned some of the measures our hotel has taken. And we would like to know if there are any energy-saving measures in our scenic area due to the zero carbon certification. For example, we rented a electric vehicle today. Did it exist before, or was it converted to the more energy-efficient electric vehicle we have today?

A: It has always been electric. It's not about the certification. There are no gas-powered cars in the scenic area. Some of the dining spots in our scenic spot are not using gas or coal gas. They all use electricity.

Q: Although the term was not certified at that time, maybe the leaders had the zero-carbon consciousness and directly adopted the electric cars because of the dual-carbon policy. Later,

in order to achieve zero carbon, what measures or improvements do we make for zero carbon certification?

A: For example, the purchasing department did not take energy consumption into consideration when purchasing facility and equipment at the very beginning. Maybe it was just a comprehensive consideration about the price. But after this certification, we have a requirement which is what we call green procurement. We will conduct an evaluation on some suppliers to see if they meet the requirements of green procurement. After this requirement is met, we will buy their products through channels.

Q: What kind of standard is this green procurement? Do the suppliers have to have a certification for energy-saving products?

A: That supplier must have a title like, say, National Green. Then if we see that he meets the green procurement standard, then we must be assured to purchase products from him. Maybe we will take this into more consideration when choosing suppliers in the future.

Q: Then we noticed that the small windmill in front of our gate, is it a small device for generating electricity.

A: We put it on display a few days ago for the National Day and the Mid-Autumn Festival. It's the layout of the event site. It's not a device that generates electricity. It is a decorative object that is powered by electricity.

Q: Are there any places in our scenic area that use solar energy, wind energy and other new energy sources?

A: There are charging piles in the scenic spot. There are car charging piles in the parking lot of the hotel as well. There is also a drainage device that diverts rain and pollution. But this utilization rate may be relatively low. We didn't use the collected water for watering flowers or anything. That's still not a very high utilization rate. This is also some of the operational suggestions they finally put forward to our team during the certification.

Q: In a scenic spot like ours, there are a lot of trees and vegetation, so maybe it can offset some of this carbon emission. Just want to confirm those electric cars have been put into use since the operation of the Forest Park as you said.

A: The cars inside the scenic area are all electric, but we certainly can't control the ones outside. There is no way for us to control whether tourists are driving electric cars or fuel cars.

Q: When did our scenic spot start to operate these electric vehicles? Because our scenic spot is also a place with a long history. In the beginning, there may not have been such a regular operation as now, and how the vehicles were managed at that time.

A: We started out as a state forest farm in 1965. It was a forest farm before we started receiving tourists. It was also not in operation at that time and was not of a profitable nature. We officially started to have tourists in 2015. Before, there were almost no visitors. The purchase of these vehicles has basically started in 2015.

Q: That means from 2015 all these facilities are basically electric. Then like street lights, are they conventional or they use solar or led lights?

A: They're all led lights. And there are some regulations in the scenic area that say you can't bring fire, you can't smoke, and no fireworks. Barbecuing is also not allowed. The whole area is electric.

Q: When did we decide to do this certification? Because I think it's going to take a long time.

A: I got the task in February 2023. At that time, I started to prepare for it. But before that, city level leaders had come to guide and supervise our park. Zero-carbon must have been discussed long ago.

Q: So according to what you said, maybe the municipal leaders decided that this scenic spot should do this certification. They think it is feasible and then issue this task to our management committee. Then you can work with them on the following matters according to the certification authority they have given.

A: That's right.

Q: Then which departments have the decision-making power for this certification.

A: The decision-making power must belong to the top leaders, but the final leading department would be our operations department. Because at that time, when we received this task, one of the sub-leaders of our operations department was responsible for this task. And then eventually the task was assigned to our operations department.

Q: It's the head of our department is going to apply to the upper level and say that we are going to do this certification. Or the senior leaders directly tell our spot that we need to do this certification.

A: I guess we have both. Maybe it's mainly the requirements of the leader.

Q: So the certification period is not very long, is it? It takes about two or three months from the time you get the notification to the time you get the certification.

A: Well, three months. There are also this offline field trips in between. But it would have been much earlier since we build up online communication, in late '22 or early '23 like that.

We keep in touch online. They may tell us some materials that need to be prepared. Then the leaders will come over to supervise them in stages.

Q: So the leadership may have had this idea in 22 years or even earlier. And then I would like to ask if there is any part of the certification process that you think could be improved. Something you think is inefficient.

A: Since this is the first zero-carbon certification issued, there must be some deficiencies in this specialty. As far as we are concerned, their organization is more professional. However, it may be said that more emphasis is still on our side, such as how to get various departments to cooperate to provide these data. Although the leading department is the operation department, the material support needs not only the operation department, but also many other departments. We may not be doing enough. The whole certification process might go faster if we cooperate well.

Q: If the cooperation between different departments is more close, then the time spent on certification can be shortened.

A: Yes, this is a more important point. Because there are some hard standards that we really can't meet at present. Then we can only make improvements in other areas where the score is low. If we can't, there's nothing we can do about it. In the future operation, we will pay attention to this aspect of the problem and improve it.

Q: Is this certification time-limited, or will it be reviewed regularly?

A: It has to be reviewed regularly. It is normal to have another audit once or twice a year.

Q: Could you please mention in which aspect it is difficult for our scenic spot to meet the standard of zero-carbon scenic spot?

A: We have a zero carbon committee. One of the main leaders of our scenic area will act as the major leader, and then the leaders of each department will act as a group leader to promote the zero-carbon work. Because each department has different responsibilities, we need to carry out this supervision and discuss how to improve these problems in the future. I remember at that time, the certification also required an air quality report. Our scenic area is qualified because the basic conditions are here. This is easy.

Q: Yes, there are many large screens in our scenic area showing today's air quality and anion information. Does it have multiple monitoring points or is it just about a broadcasting function?

A: It's supposed to be a broadcast. There's only one monitoring point.

Q: So when did we start this air monitoring?

A: I'm not sure about the details. I'd say around year 2022. Or it could be earlier. Because the basic information of the scenic spot often covers the content of negative oxygen ions. Our leaders often use such data when making introductions, so I think this data should be available very early. You asked previously if there is any part that is difficult to achieve. As I mentioned earlier, the procurement of secondary energy efficiency equipment is more difficult. This is because the purchase department has not focused on this aspect before. They didn't look at whether they were buying primary or secondary or tertiary energy efficiency equipment. You ask them to count the number of equipment with secondary or higher efficiency levels, they probably have a hard time finding that data, they can only estimate. In terms of hotel electricity consumption, the expert said that although we finally met the requirements of this certification, the hotel still needs to control its electricity consumption in the future. The consumption of electricity in three hotels is still quite large. In the future, we should pay attention to the situation of electricity.

Q: Has the scenic spot taken any more economical measures for energy conservation and energy efficiency?

A: Well, in terms of energy conservation, we should pay attention to the procurement mentioned just now. The product we purchased should be more energy efficient and green. We can't just consider the price.

Q: Are there any operational requirements for hotels or restaurants such as turning off all energy devices when people leave?

A: Yes, like the key card. When there are two people in the same room, I give you a room card for each person. So in this case, even if they are leaving the room, they still leave one key card for power. Then this portion of electricity is wasted. Then we can provide one key card instead. Then when the guests leave, the power will be off as soon as they take the key card away. This may be a more energy efficient way. Then, pay attention to the use of some biodegradable daily necessities, such as disposable lunch boxes and tableware.

Q: Will there be any supervisors in our scenic spot? Is it unified procurement or is the hotel only responsible for the hotel part, but the scenic spot is supervising it?

A: Well, all purchasing is done by the purchasing department so that the standards can be unified. There are some places that were difficult to certify at that time, that is, a utilization rate of kitchen waste. The utilization rate of kitchen waste is not too high. We may just dispose it as garbage, and the utilization rate will be relatively low.

Q: How can we solve this problem behind the scenic spot?

A: Try to encourage tourists not to waste their meals. For example, weighing by the gram. You have to pay more when you're wasting a certain amount. Or when you prepare the

ingredients in the kitchen, make an estimate. Some ingredients may have a short shelf life and be wasted if they go bad the next day. Another is that our water utilization rate is relatively low, so we may just drain it directly without recycling. Because this treatment also needs some equipment and facilities, and then the cost is relatively high. So we may need to comprehensively consider whether to carry out such a measure. If the water is used directly to water the flowers, it is feasible, but in fact, it is not necessary because the whole forest area is quite humid.

Q: There is no change in ticket price before and after the certification of the scenic spot right?

A: Well, there is no change in ticket prices. The prices are still the same.

Q: Is there any change in the number of tourists?

A: Well, the number of tourist doesn't really have much to do with the certification. Maybe some researchers like you will come. Or other scenic spots might want to come and study. But at the moment, it is relatively rare, because we have just completed the certification. Maybe next year or the year after that some people will come to study and inspect. There's not much change in the number of tourists. After the opening up of the epidemic, people have more freedom and more choices.

Q: Will the publicity department use zero-carbon as a advertising point to vigorously publicize?

A: Yes, we do. After our certification, the Huanghai National Forest Park website will have a special section on zero carbon. Then our office will issue some zero-carbon policies for all departments to learn about. There is also a big display screen in our scenic area, which will provide our data regarding carbon emissions.

Q: Will the scenic spot provide some zero-carbon training to all the staff, or enhance their awareness?

A: Not so much. Before the certification, employees have been doing according to this requirement standard. It's just no systematic standard has been formed. In the actual work, these things have been accustomed to.

Q: Can you provide the grading details they certified at that time? Because we can't find any announcement on their official website. Their standards are quite important. The country doesn't have a unified standard right now. Only group standards are being discussed.

A: We don't have the final score in the standard. We are only responsible for providing the data to them. But we do have the evaluation form.

Q: So the natural gas here is transported back and forth by car. It's not directly connected to the network.

A: Yes, it's not a direct network. It's delivered back and forth by car. Because our scenic spot is actually full of electricity, including the kitchen in the scenic spot. But the restaurant in the hotel uses natural gas. Natural gas also produces greenhouse gases. Now we are applying for the creation of a national tourist resort, We are going to choose one between 5A and a national resort. At present, it is likely to be a national tourist resort, and the 5A May be put on hold.

Q: If we create a national tourist resort, will our zero-carbon certificate be a plus?

A: It can be a plus for sure. But it's probably still in the planning stage at the moment, because it's a big project and it's going to take a long time.

Q: Because we had a presupposition that the completion and promotion of this zero-carbon scenic spot certification might lead to an increase in tourist flow.

A: I don't know. The word "zero-carbon scenic spot" is a new word. Some tourists may not have this level of knowledge when they come here. I might advertise that I'm a natural oxygen bar for them to get their oxygen in terms of attracting visitors. I don't think it's going to have a big impact on tourist flow. This effect will be a plus for our scenic spot to create a brand in the future.

Q: According to this standard, if other scenic spots do not have such a large amount of vegetation as ours, it is possible to achieve this zero-carbon certification?

A: I think it's more difficult. Because zero-carbon doesn't mean you don't emit carbon dioxide. Carbon sinks are also important. You have to cover your emissions. If you don't have the carbon sink capacity, how are you going to get there?

Q: Do you think with upgraded equipment or increased inputs, such as vehicles, wind and water energy, other scenic spots can meet the certification standards without so much vegetation?

A: They probably can. But for the whole unit, who is going to bear the cost? The investment is going to be huge.

#2 CQM

January 15, 2024 at 9:38 am

keyword:

Certification, scenic spots, certificates, evaluation, enterprises, units, energy, Suzhou, national standards, sustainable development, national recognition, weighted average, natural conditions, institutional review, management company, international certification

Huanghai national forest park (Huanghai)

“CQM” is the certification agency

“A” is student

The following is not recorded, record the text

A: Hello, I am A graduate student from Duke University. Today, I would like to have an interview with you on the certification of the Huanghai Forest Zero Carbon Scenic Spot. Thank you for your interview.

CQM: Ok, What do you mainly want to interview?

A: First of all, can I know the score of Huanghai Forest Park when it was certified?

CQM: I can tell you the total score, but the single score is not very convenient, you wait a moment, I go to take the computer to see.

A: Ok, thank you.

CQM: Overall score of the Huanghai is 90.41.

The following is the recording section

A: Firstly, I'm looking at the zero-carbon scenic spot certification. Is the standard assessed based on the overall score of the entire evaluation?

CQM: Yes, primarily it's an application model, a type of service authentication. I'm not sure how familiar you are with certification.

A: I have some knowledge, but I'm not fully informed.

CQM: Certification falls into several categories: product, system, and service certification. Currently, there's a fourth category, verification, within the province. Here, we're dealing with service certification, where the main evaluation focuses on performance and management. The certification process combines management evaluation with service performance assessment.

A: So, regarding the scoring, if we see many final scores, if one is, for instance, 100 points, are the rest around 80 or other values? And is the overall score based on the average?

CQM: No, we calculate the overall score using a weighted average. We have several primary indicators, each divided into different grades, and we assign them weighted values. For example, if a scenic spot develops a low-carbon or zero-carbon plan, and it's not just about having a plan but also publishing it formally, it might score 60 points, which is just a pass. If the plan is perfect and published formally, scoring 100, it gets a higher weight. We then evaluate the score based on this weighted system.

A: How high can a spot be certified?

CQM: We require a minimum score of 90 for certification.

A: Are there any additional points awarded?

CQM: Yes, there are bonus points for achieving zero carbon, meaning all emissions are completely offset by carbon storage or carbon sinks.

A: Earlier, you mentioned a value associated with the zero-carbon index. Is this an added bonus?

CQM: No, that's a strict criterion. It indicates that emissions must genuinely be zero. Unlike other places where emissions might be offset synthetically, we consider international standards and require genuine emission reduction measures or carbon sinks to achieve zero carbon.

A: So, if it's a strict standard, does that mean it has to score 100 points?

CQM: Not necessarily. Even a score of 60 can suffice, depending on its weight. For example, with a score of 60, if its weight is 12%, then its score would be 7.2 points.

A: How are the weights of each index determined?

CQM: Regarding the specific table and manufacturing method for determining weights, I can't disclose that information. It's part of our company's internal technical documents and isn't public. However, for example, in zero-carbon certification, we set weights for various indicators. These indicators, which are divided into sub-categories, might have weight ratios like 2% or 3%. The sum of these sub-category weights constitutes the weight of the primary indicator. Ultimately, each indicator receives a score, which is then multiplied by its weight to calculate the comprehensive score.

A: I understand that the weight is internal to your company. Can you explain what factors determine these weights?

CQM: Generally, the weights are determined internally within our company since it's not based on national standards but on our own technical documents. These documents aren't public, so I can't share them without the company's consent. However, the weights may be determined based on various methods, such as subjective scores from experts, city analysis methods, or other temporary approaches.

A: So, the service performance evaluation, the zero-carbon index, and the three bonus points all have negative weights?

CQM: Yes, each one carries a negative weight value.

A: You mentioned earlier that some scenic spots focus more on carbon sinks, like Huanghai Forest Park. Does this align with the certification method?

CQM: Yes, precisely. Huanghai Forest Park is a prime example.

A: However, some spots might rely solely on forests and not invest in other low-carbon technologies.

CQM: Indeed, for such spots, additional industrial technologies might not be practical. But natural scenic spots like forests or coastlines inherently possess carbon sequestration capabilities. That's why our focus is primarily on natural scenic spots rather than cultural or man-made ones. Achieving zero carbon for pre-existing cultural spots can be challenging due to their inherent characteristics.

A: If cultural spots want to achieve zero carbon but lack the necessary conditions, are there alternative methods?

CQM: Yes, they would need to undergo a series of low-carbon transformations. These transformations should be economically feasible and align with their expected usage. For example, they could switch to green electricity for their operations or invest in green technologies like photovoltaic panels if feasible.

A: So, having access to green energy, such as photovoltaic, would be beneficial for them.

CQM: Absolutely. Utilizing photovoltaic panels or other green energy sources can significantly reduce emissions for these spots, if conditions permit.

A: So, it's not just natural scenic spots that can achieve zero carbon.

CQM: Exactly. Even cultural spots can strive for zero carbon through sustainable practices and utilizing green technologies. However, certain limitations might hinder this goal, as seen in places like the Forbidden City.

CQM: For instance, the Palace Museum, part of our group's efforts for certification, faces challenges due to its cultural significance. It's not as straightforward to implement changes there due to preservation concerns. We're exploring options for sustainable development in collaboration with the Palace Museum.

A: So, even for places like the Forbidden City or other regular scenic spots, will the certification standards for zero-carbon scenic spots remain unchanged?

CQM: The current standard is essentially a first draft and is continuously under revision. As we encounter different characteristics in various scenic spots, we may need to revise our audit standards accordingly.

A: But the revision process surely involves group discussions rather than on-the-spot modifications, right?

CQM: Yes, there's a structured process involving revisions, reviews, and gathering opinions.

A: There are various percentage assignments in the secondary index, with values like 100, 80 to 99. What's the rationale behind this interval? Is it based on national standards or within your company?

CQM: Generally, these assignments serve as references. We may refer to national standards (GB) or consider specific requirements based on our current certification work. For instance, if certain conditions are deemed essential, we assign different values accordingly. However, these assignments are often scaled into a 100-point system for ease of calculation, considering the weights. Since weights might complicate scoring, we maintain a full score system and adjust scores based on weights.

A: What determines these weights?

CQM: Typically, weights are determined using conventional methods. We might employ a city analysis to assign weights or rely on direct evaluations from experts. If multiple experts agree on certain aspects' importance, we might allocate corresponding weights. By combining our internal assessment with expert opinions, we strive for more objective and reasonable weightings.

A: How many experts usually participate in these assessments?

CQM: Typically, there are more than three or four experts involved.

A: Let's talk about the proportion of renewable energy consumption. How is this consumption calculated?

CQM: Renewable energy consumption refers to the percentage of energy derived from renewable sources, such as solar energy. For example, if a scenic spot has solar panels installed

but only provides a fraction of its annual energy needs, we calculate the percentage of solar energy in its total energy consumption. This can vary; for instance, some enterprises may derive less than 10% of their energy from renewable, while others might achieve higher percentages. For example, Huanghai Forest Park utilizes renewable energy sources like solar panels and air heat exchange systems, constituting a portion of its renewable energy consumption.

A: How do you calculate the emissions per unit of income?

CQM: Emissions per unit of income, also known as emission intensity, is a straightforward and comparable indicator of a country's energy or carbon emissions. It's calculated as emissions per ten thousand yuan of gross domestic product (GDP) or per ten thousand yuan of output value. This indicator helps compare emission levels between different regions or enterprises.

A: So, it's essentially about enterprise carbon emission management?

CQM: Yes, precisely. Lower emission intensity indicates more efficient management practices. A higher emission intensity suggests inefficiencies in resource utilization and management strategies. Comparing emission intensity alongside total emissions provides insights into overall carbon management effectiveness.

A: Is the calculation method consistent with national standards based on publicly available information?

CQM: Yes, typically, it involves calculating emissions over a two-year period, reflecting the current year's certification and the previous year's data.

A: If certification is conducted in March, April, May, or June, but the data covers only a few months of the previous year, how does that work?

CQM: Generally, we can't conduct certifications in March and April since certification requires a sufficient data period to be meaningful. Typically, we expect data covering at least half a year to provide a basis for comparison with the previous year's data. If there's a gap of one or two months, we have a couple of options. One method is to substitute the missing data with the values from the same months in the previous year. This is called the replacement method since the conditions are likely similar. Alternatively, we might use a weighted average, giving more weight to months closer to the certification period.

A: I've read about a group standard for zero-carbon tourism. What impact would this standard have?

CQM: Group standards for scenic spots have been around for some time. However, simply having a standard isn't sufficient. The standardization process varies between groups, and their standards might be used for reference or evaluation but not necessarily for certification. Evaluation results lack credibility compared to certification, which involves national authorization and recognition by authoritative bodies. While group evaluations might issue

certificates, these are essentially evaluation certificates and don't carry the same weight as official certifications.

A: So, these group standards may evaluate tourist attractions as zero-carbon scenic spots, but they don't issue certificates like your group does?

CQM: That's correct. While they may issue certificates based on their evaluations, these certificates are essentially evaluation certificates and lack the credibility of official certifications. Each evaluation may yield different results, unlike certifications which adhere to standardized processes and criteria.

A: I noticed a clause under the evaluation standard that mentions calculating each index out of 100 points. What does "termination evaluation" mean?

CQM: "Termination evaluation" occurs when certain indicators cannot be assessed. For example, if an indicator doesn't apply to a specific scenic spot, the evaluation might be terminated for that indicator. In such cases, we might give full marks since the indicator doesn't apply, ensuring consistency in scoring.

A: So, if an indicator doesn't apply, you still give full marks?

CQM: Yes, exactly. If an indicator doesn't apply, we award full marks to maintain consistency. It's like acknowledging that the requirement doesn't apply to that particular case.

A: Doesn't this just ensure that the standard is met?

CQM: Not exactly. While reaching the standard is important, full marks for inapplicable indicators don't necessarily mean the standard is met. When calculating the total score, inapplicable indicators are factored in, but they don't contribute to the overall assessment.

A: So, giving full marks is just to ensure fairness in scoring?

CQM: Yes, it ensures fairness and consistency in evaluation.

A: Was there a consultation period before HuangHai was certified?

CQM: Theoretically, there's a process of development where a scenic spot should engage in zero-carbon management activities based on its own initiatives. Why did you choose Huanghai? Well, previously they had this idea, including low-carbon venues, and were promoting zero carbon and reducing carbon emissions. Besides their hotel, their small cabins outside the hotel area didn't contribute much to pollution emissions.

They also focused on maintaining good air quality, displaying daily negative oxygen ion announcements at the entrance. The leadership emphasized carbon reduction and environmental protection, reflecting their proactive stance. While they implemented several activities during their management period, there were some shortcomings. For instance, in future planning, they could consider enhancing certain activities and addressing issues like electricity usage. We suggested installing photovoltaic panels outside the hotel to generate green electricity, which aligns with their commitment to environmental sustainability. Additionally, their forest area couldn't be reduced; instead, they had to increase it annually, complying with forestry regulations.

A: Did you mention anything else?

CQM: Primarily, their management concepts and practices, like building a hotel without considering green building standards or implementing a low-carbon supply chain. Although they were aware of these aspects, they lacked knowledge on green hotel certification or energy-saving building designs.

A: One index is the proportion of green buildings apart from ancient structures. Did they construct green buildings later?

CQM: Yes, they built a low-carbon, energy-efficient conference center next to the hotel. They realized the potential and considered constructing green hotels during their hotel development phase.

A: I recall another index about rain and sewage diversion and reclaimed water reuse. Was that fully implemented?

CQM: Yes, they diverted rainwater and sewage for irrigation purposes, ensuring efficient water use for landscaping around the hotel.

A: They also mentioned kitchen waste management. Did they have systems in place for that?

CQM: Yes, they complied with state regulations, ensuring regular collection and disposal of kitchen waste by designated companies.

A: Regarding the fallen leaves, were there any challenges?

CQM: Yes, estimating leaf quantities was challenging due to various tree types and sizes. So, we adopted a principle of trade-off, considering factors like the forest's good management practices and available data to estimate annual leaf quantities.

A: So, did they just estimate the amount?

CQM: Yes, we estimated a general amount based on available data, recognizing that precise figures might not be feasible.

A: Considering other scenic spots without natural conditions like Huanghai, what efforts do they need to make for certification?

CQM: They'd need to focus on energy transformation, particularly electricity and transportation emissions. Establishing parking lots outside the scenic area to minimize carbon emissions inside, transitioning to green electricity sources like photovoltaic panels, and enhancing forest coverage to offset carbon emissions would be essential.

A: Are these calculations standardized nationally?

CQM: Yes, the calculation method generally involves multiplying activity data by carbon emission factors. While there's no fixed national standard for scenic spots like 3C and 5A ratings, local governments or organizations can propose standards for national approval.

A: If a national standard is approved, do scenic spots have to comply?

CQM: Yes, certification bodies must adhere to national standards. Certification bodies are equivalent to national certification bodies, ensuring consistency and legality in certifications.

CQM: You can't call it a national certification because there are many certification bodies, both private and state-owned. As we belong to a state-owned certification body, undertaking such certifications requires authorization from the state. This approval process entails meeting certain conditions and obtaining a letter of approval from the certification body. Once you receive the agency's approval letter, it specifies your business scope, allowing you to conduct certifications within that scope. Not every certification body can engage in all types of certifications; it depends on their technical orientation and the scope of their license. There's also a form of certification known as national recommended certification, which is endorsed by the national government and can be conducted by various certification bodies without restrictions.

Another type is agency recommendation certification, where specific organizations promote certifications. For instance, if we believe a certification falls under agency recommendation, we can propose it, and upon approval, proceed with the certification process. However, some organizations may not prioritize or engage in this process due to differing concepts of certification adoption. Following certification, the Accreditation Committee reviews the results and grants recognized qualifications. This state recognition is denoted by a mark, commonly known as the CNAS (China National Accreditation Service for Conformity Assessment) recognition mark, which indicates that the certification results are approved by the state.

A: So, after submitting to the accreditation agency, do they review it?

CQM: No, they only review our organization, assessing our management processes and the feasibility of our review outcomes. If they deem everything satisfactory, they provide an authorized approval certificate. We then affix the recognition mark to our certification, signifying national recognition of the results.

A: That covers everything we needed to discuss. Thank you for the detailed interview.