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Describing the Dynamic Evolution of Tourism Ecology Efficiency Based on Super-efficiency DEA

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Abstract

With the progress of society and the improvement of people's living standards, people's demand for leisure tourism is getting higher and higher. In recent years, the tourism industry has achieved rapid development and has become a pillar industry with rapid growth of the national economy. The environmental changes caused by the rapid development have attracted the attention of scholars at home and abroad. This paper builds a super-efficient DEA model that focuses on describing the dynamic evolution of tourism ecology efficiency in Jiangsu Province from 2002 to 2016, and conducts a regional comparative study. The results of the study show that: from 2002 to 2016, the tourism ecology efficiency of all regions in Jiangsu showed an upward trend, but the regional differences were large, the inter-regional development was unbalanced, and the ecology efficiency of tourism in southern Jiangsu, Central Jiangsu, and northern Jiangsu declined in turn, but between regions. The difference gradually decreases. Finally, on the basis of empirical analysis, the corresponding countermeasures and suggestions are put forward in light of Jiangsu's actual situation. It is hoped that this will provide reference for the promotion of tourism ecology efficiency in Jiangsu.

Keywords: super-efficiency, tourism, ecology efficiency

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INTRODUCTION

In recent years, China's tourism industry has developed rapidly. Especially in the pursuit of energy-saving and emission-reduction, tourism as a "smoke-free industry" has received more attention from people. Many provinces and cities have taken tourism as their priority support and priority development industry. As one of the developed cities in the country, Jiangsu has placed tourism in an important position in economic development. During the "Twelfth Five-Year Plan" period, Jiangsu's total tourism economy continued to grow rapidly, achieving a total tourism income of 3.66 trillion yuan, with an average annual growth rate. 14.1%; the province received a total of 2.6 billion domestic and foreign tourists, with an average annual increase of 11.5%. In 2015, the added value of tourism reached 403.7 billion yuan, accounting for 5.7% of the regional GDP. The scale of tourism investment has expanded rapidly. In the five years, a total of 643 billion yuan in tourism investment has been completed. The average annual growth rate has exceeded the growth rate of investment in fixed assets in the entire society. During the 13th Five-Year Plan period, the implementation of national strategies such as the "Belt and Road Initiative" and the construction of the Yangtze River Economic Belt has brought about broad development space for tourism development. The transformation and upgrading of the industrial structure will also usher in a golden period for the development of a comprehensive strategic tourism industry. With the improvement of people's living standards, the tourism public service system has become increasingly perfect, which has further stimulated the rise of the mass tourism era. The era of mass tourism has brought new opportunities and will result in a larger and more diverse tourism consumption demand. New products and new business forms such as holiday experience, health and fitness, sports and leisure emerge constantly, which greatly expand the new fields of tourism development and provide new impetus for Jiangsu Province to accelerate the structural reform of the tourism supply side. However, tourism saturation in the popular tourism era has increased dramatically, and the environmental impact brought by tourism has attracted the attention of scholars at home and abroad. Domestic and foreign scholars have conducted extensive

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discussions on the coordinated development of tourism economy and environment and their mutual relations. Studies have shown that tourism ecology efficiency can better explain the relationship between the two, and can also better measure tourism's environmental impact. In this context, this paper uses Jiangsu as an example to explore the ecology efficiency of tourism and has important practical significance for the coordinated development of tourism and environment in Jiangsu.

LITERATURE REVIEW

The Meaning of Ecology Efficiency

Ecology efficiency is one of the important indicators to measure economic development and environment. Ecology efficiency is a ratio. Its meaning is to use less resource to invest or consume to achieve greater output, and pay more attention to efficiency and efficiency. "Ecology efficiency" concept by the World Business Council for Sustainable Development (World Business Council for Sustainable Development (WBCSD) was confirmed in 1995 as its action goal. This concept was first discussed for "how to improve corporate environmental performance to adapt to sustainable development trends and enhance the competitiveness, innovation capabilities, and environmental responsibility of companies" (Assaf 2012). However, from the perspective of environmental destruction and externalities of governance, ecological environmental protection has the nature of public products. Considering ecological environmental protection and even sustainable development at the corporate level alone cannot effectively solve this problem. This has led to the application of ecological efficiency. The enterprise level extends to a more macro regional, national and even international level. The research of Government (2003) is a landmark. They set the research on ecology efficiency at the regional level and opened the prelude to the research on "regional ecology efficiency". The meaning of regional ecology efficiency is that within a certain economic region, "produce competitive products and services with less resource consumption and environmental pollution to meet human needs and improve lives" (Barros and Matias 2006). The essence is less investment, less emissions, and more output. It is an effort to develop the regional economy without threatening the ecological environment. It is therefore consistent with the core concept of sustainable development related to economic, resource, and environmental development. Measure important concepts and tools for sustainable development (Glandstone 1998).

Tourism Ecology Efficiency

Since the 1990s, sustainable tourism has become a consistent concept for tourism researchers and the tourism industry. Today, the academic community believes that tourism development must follow the principle of sustainable development. Obviously, to achieve this goal, tourism Carbon emissions and energy consumption must be strictly limited to the threshold level. The concept of applying tourism ecology efficiency can achieve a bi-effect, which is to create new market jobs while reducing costs and reducing the environmental impact of tourism. Charles and Paul (2001) conducted an interactive analysis of the environmental impact and economic benefits of the tourism industry, and conducted quantitative research on the tourism ecology efficiency of the Rocky Mountain National Mountain Park, Holland Amsterdam, France, Seychelles and other countries and regions. The ecology efficiency of tourism in different destinations was compared, and it was thought that there were many reasons that led to differences in the ecology efficiency of different source markets. The reasons included the per capita spending of tourists, the length of stay, the distance from source to destination, the model of tourism traffic, and tourists. Behavioral habits, choice of resort type preferences, etc. Dwyer et al. (2003) takes Davos in the Swiss Alps as an example to evaluate tourism ecology efficiency strategies by using input-output analysis (IOA) models for indicators of economic efficiency, land use, and employment Ricardo et al. (2013) used the Discrete Choice Experiment (DCE) method to analyze the preferences of tourists for improving tourism ecology efficiency measures such as land use, transportation, leisure, and environmental management innovation. Under the background of low-carbon tourism and tourism energy conservation and emission reduction becoming a major trend, tourism ecology efficiency research has organically integrated the two variables of tourism environmental impact and economic benefits, providing a new perspective on the analysis of sustainable tourism development.

The related research contents in China mainly focus on the following research areas. Sui and Cai (2006) based on the ANP method, constructed evaluation indicators for low-carbon tourist attractions from low carbon design, energy conservation, water conservation, and ecological protection; Yu et al. (2014) Based on the theory of complexity management science management entropy and management dissipative structure, a multidimensional integrated integration evaluation

system for low-carbonized scenic spots was constructed from the aspects of economic operation, social development, ecological environmental protection, low-carbon control, and construction guarantee; Liu Chang et al. (2012) uses the DEA and SFA methods to develop low-carbon tourism for environmental protection in the scenic area of Zhangjiajie. The service was evaluated; Yu et al. (2014) built a mountain-based low-carbon tourist area creation index system from four aspects of resource protection, planning, design, operation and management, and conducted an empirical analysis with Huangshan Scenic Area as an example; Lu and Ge (2006) Low-carbon tourism service delivery efficiency model and. And validated with 29 scenic spots in Chengdu.

Estimation of Ecological Efficiency

There are many indicators for measuring ecology efficiency, such as energy intensity, CO2 emission intensity, and SO2 emission intensity. These indicators are simple to calculate, easy to understand, and operate. However, they are too focused on a certain factor input and pollution emission and cannot reflect the production process. In the alternative relationship between various types of resource inputs and pollution emissions, the efficiency measurement results are not realistic. In order to solve this problem, some scholars have introduced Data Envelopment Analysis (DEA) as a non-parametric frontier analysis method. The DEA method does not require a specific form of production function to be set in advance, and it is not necessary to obtain price information of input and output elements. The entire measurement process is not influenced by human factors and has strong objectivity. At the same time, it can also reflect the interaction and substitution relationship between various input factors. It is considered to be a scientific method for measuring ecological efficiency. It has been obtained in recent years. Widely used. For example, Yu et al. (2014) evaluated the ecological efficiency of European thermal power plants under the DEA framework using two different methods; Yu et al. (2014) proposed a complete theoretical framework for ecology efficiency analysis using the DEA method. The transportation industry was taken as an example for empirical analysis; Yu et al. (2014) considered environmental pollutants as input factors and constructed multiple DEA efficiency measurement models to evaluate the ecological efficiency of industrial systems in various regions of China; Briedenhann and Wickens (2004) The Tobit method was used to measure the ecology efficiency of Spanish agricultural companies, and the Tobit regression method was used to examine the factors affecting the ecology efficiency of agricultural enterprises; Sui and Cai (2006) considered the discharge of pollutants as an undesired input to the DEA analysis framework. The evaluation of the ecology efficiency of the 43 companies in the Hangzhou Bay Fine Chemical Park was conducted. Sui and Cai (2006) based on the ecology efficiency perspective and the DEA method empirically measured the dynamic environmental performance of the Chinese industry from 2003 to 2007 and decomposed it. Two components for relative dynamic efficiency change and environmental technology change; Sui and Cai (2006) constructed an ecology efficiency evaluation index system based on material flow analysis and DEA model to examine the dynamic evolution of ecology efficiency in Jiangsu Province from 1990 to 2005; Assaf (2012) measured 1995-2007 based on the super-efficiency DEA model. The ecology efficiency of 30 provinces in China during the year, and analyzes the spatial and temporal differences and the convergence characteristics of the changes in efficiency. All of the above documents confirm to some extent the feasibility and effectiveness of the DEA-based ecology efficiency measurement method (Briedenhann and Wickens 2004).

In general, in the context of sustainable development, the academic community has conducted research on factors affecting tourism ecology efficiency, empirical analysis of measurement, and promotion strategies, and has achieved some results, providing a theoretical basis for follow-up research, but it still exists. Some limitations: (1) the improvement of ecology efficiency is an important measure of sustainable tourism development. Measuring the ecology efficiency of tourism is conducive to the sustainable development of scenic spots, but there is less empirical analysis of tourism ecology efficiency in the academic community. (2) Based on Tourism ecology efficiency measurement of tourism carbon footprint and ecological footprint is currently the main feature, but it ignores the value of energy consumption.

Based on the above analysis, this study uses Jiangsu as a research area, builds an evaluation index system of Jiangsu's tourism ecology efficiency, uses SBM-DEA to measure, and analyzes the characteristics and evolution of Jiangsu's tourism ecology efficiency, which helps to promote the sustainable development of Jiangsu tourism.

EMPIRICAL ANALYSIS

Evaluation Method of Tourism Ecology Efficiency

Meaning of tourism ecology efficiency

The concept of tourism ecology efficiency the concept of tourism ecology efficiency is derived from ecology efficiency. The core attribute of ecology efficiency is "minimum input, maximum output". Many organizations and institutions in the world have given different definitions. Ayres believes that ecology efficiency is a concept that describes both the reduction of energy and natural resource consumption in the production of products and services, while also increasing the value of products and services, and can reduce the release of pollutants. Correspondingly, tourism ecology efficiency refers to the "dual goal" of maximizing tourism economic efficiency and minimizing environmental impacts. A tourism science variable that is calculated by the ratio of tourism income and environmental impact is a quantitative evaluation of sustainable development of tourism.

Tourism ecology efficiency evaluation method

The ecology efficiency assessment method proposed by the World Business Council for Sustainable Development (WBCSD) is widely accepted:

$$Ecology\ efficiency = value/environmental\ consumption$$

Indicators of corporate value include total revenue, profitability, output, etc.; industry economic indicators use gross domestic product, value-added, output value of major economic sectors in the region, etc.; The consumption indicators include five general indicators such as energy consumption, material consumption, water consumption, greenhouse gas emissions, and ozone-depleting substance emissions. In this paper, the super-efficiency DEA model was selected to measure the ecology efficiency of tourism in Jiangsu.

METHODOLOGY

Super-efficiency DEA

The DEA method, also known as Data Envelopment Analysis, was proposed by Sui and Cai (2006) to describe what is a mathematical planning approach based on production frontiers and how to measure the efficiency of the construction boundary. The DEA method is a non-parametric, multi-factor productivity analysis tool that can estimate the relative effectiveness of multiple inputs and multiple outputs. The DEA method is a non-parametric method that does not need to pre-estimate the parameters and does not need to establish a functional relationship between the explanatory variables and the dependent variables, thereby avoiding the inadequacy of adopting wrong functional forms to draw wrong conclusions. In economics, the DEA method is often used as a solution to the problems of costs, benefits, and profits. It is also used to search for the validity of allocations and to estimate the progress of technology and productivity. The DEA method is used to study the tourism industry. It focuses more on foreign companies such as hotels, airlines, and travel agencies on the micro level. In China, it concentrates on hotels and other tourism companies, and is relatively focused on the relative efficiency of the macro level of regional tourism. Based on research at home and abroad, this paper selects Jiangsu with a high strategic status as the research object and evaluates its tourism ecology efficiency in southern Jiangsu, Central Jiangsu and northern Jiangsu from 2002 to 2016 in order to evaluate the efficiency of Jiangsu's ecotourism development.

The DEA model refers to the "unit" or "department" to be evaluated as the DMU, and each $U_{DM_j}(j = 1,2,3,\cdots,\mathrm{n})$ has r term inputs. $X_j = (x_{1j}, x_{2j}, \cdots, x_{rj})$ and s term output $\mathrm{Y}_j = (y_{1j}, y_{2j}, \cdots, y_{sj})^T$, where x_{mj}represents the mth type of input of the jth U_{DM_j}The quantity, y_{lj}denotes the input quantity of the jth U_{DM_j}, $x_{mj} > 0$, $y_{lj} > 0$, m=1,2,3…,r, l=1,2,…,s. The construction model is as follows:

$$min\theta_i:$$

$$s.t.\begin{cases} \sum_{j=1}^{n} \lambda_j X_j + s^- = \theta_i X_i, i = 1,2,\dots,n, \\ \sum_{j=1}^{n} \lambda_j X_j - s^+ = Y_i, i = 1,2,\dots,n, \\ \lambda_j \geq 0, i = 1,2,\dots,n, \\ s^+ \geq 0,\ \ s^- \geq 0 \end{cases}$$

Where θ_i is the effective value of U_{DM_j}, and the closer the effective value is to 1, the more effective the input of this DMU is. The validity judgment method is: if θ_i=1, U_{DM_j} is called valid or weak effective for DEA. When, $s^+ = s^- = 0$, $U_{DM_j}$is called DEA is valid; if θ_i<1, then $U_{DM_j}$is invalid for weak DEA. The input data slack variable is s^-, and s^-represents an input surplus, that is, an unused resource. If s^-≠0 indicates that the output is unchanged, the input can also reducess^-; the output slack variable for s^+, s^+ means that there is insufficient output, and s^-≠0 means that if

Table 1. Input and Output Indicator System

	Index classification		Composition of indicators
Input indicators	Environmental pollution	Wastewater pollution	Wastewater discharge (tons)
			Chemical oxygen demand (tons)
		Exhaust pollution	SO_2 emissions (tons)
			Smoke and dust emissions (tons)
			CO_2 emissions (tons)
			Dust emissions (tons)
		Solid waste pollution	Solid waste production (tons)
	resource consumption	Energy consumption	Million yuan GDP energy consumption (ton standard coal/ten thousand yuan)
		Water consumption	Total amount of water used (10,000 cubic meters)
		Land consumption	Construction land (square kilometers)
		labor force	Tourism practitioners/people
		capital	Travel agency, scenic area, hotel number
Output indicators	Total economic development of tourism		Tourism income/ten thousand

the input is constant, the output can also increase s^+. Therefore, if a DMU is not valid, DEA can be effectively adjusted by not writing input and output indicators. Assuming a fixed output level, the input variable is adjusted to: $\overline{X_i}=\theta_i X_i - s^-$; if Assuming a fixed input level, the output variable is adjusted to $\overline{Y_i}=Y_i+s^+$.

For the traditional DEA model, in the process of analyzing the ecology efficiency of tourism, multiple DEAs may be effective. At this time, their comprehensive technical efficiency index is $\theta=1$, which makes it impossible to further evaluate the effective DEA of DEA. Therefore, the use of a super-efficiency model allows for a more in-depth production efficiency ranking of all DEA effective decision making units. When calculating the super-efficiency value of the DEA effective decision unit K, the principle is to exclude the DMUk from the model, and replace the input and output of the DMUk by the input-output linear combination of other decision units. The result of the solution is the decision unit. K's super-efficiency value, due to the backward movement of its production frontier, the measured effective unit efficiency value is often greater than the traditional model's efficiency value1, and the corresponding super-efficiency values of different DEA effective decision-making units are different. Make DEA effective decision-making unit has the characteristics of ecological efficiency comparability. Anderson et al. (1999) established an investment-oriented hyper-efficiency DEA model to compensate for this deficiency, and can make effective decision-making units with efficiency values greater than one. The super-efficient DEA (SE-DEA) model is as follows.

$$\sum_{\substack{j=1 \\ j\neq k}}^{n} \lambda_j X_{ij} + s^- \leq \theta X_0$$

$$\begin{cases} \min[\theta - \varepsilon\left(\sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+\right)] \\ \sum_{\substack{j=1 \\ j\neq k}}^{n} \lambda_j Y_j - s^+ = Y_0 \;\; \lambda_j \geq 0, j = 1,2,\ldots,n \\ s^+ \geq 0 \;;\; s^- \geq 0 \end{cases}$$

Among them, λ is the weight variable of DMU, θ is the parameter to be determined, slack variable s_r^+, s_r^-, X is the input quantity, and Y is the output quantity. The solution to the model is denoted by θ^*. If $\theta^*<1$, it indicates that there is a virtual decision unit whose output is not lower than the output of the first j_0 decision unit, and the input ratio is the input of the j_0 decision units. Below, this shows that j_0 is non-DEA valid. If $\theta^*=1$ and the slack variables are all 0, then the j_0 decision unit is DEA valid; and $\theta^*<1$ but the slack variable is not 0, the j_0 decision unit is valid for weak DEA.

Indicator Selection and Data Sources

Indicator selection

Ecology efficiency emphasizes the unity of economic value and environmental benefits. In other words, economic development should be based on the premise of low resource consumption and low environmental pollution. Therefore, this paper uses resource consumption and environmental pollution as input indicators. Regional economic growth is an output indicator. The indicator system is shown in **Table 1**.

Sources of data

The input-output data required for the super-efficient DEA model is mainly based on the Jiangsu Statistical Yearbook 2002-2016, the China Environmental Statistics Yearbook, the China Energy Statistical Yearbook, the New China 50-year Statistical

Table 2. Ecology efficiency of Tourism in Jiangsu Province, 2004-2016

years	Southern Jiangsu	Central Jiangsu	Northern Jiangsu
2002	0.44	0.21	0.08
2003	0.46	0.23	0.11
2004	0.49	0.25	0.12
2005	0.53	0.29	0.18
2006	0.56	0.33	0.20
2007	0.58	0.35	0.22
2008	0.61	0.40	0.31
2009	0.63	0.46	0.38
2010	0.66	0.52	0.46
2011	0.69	0.58	0.51
2012	0.72	0.59	0.52
2013	0.73	0.63	0.56
2014	0.78	0.65	0.60
2015	0.95	0.82	0.72
2016	1.21	0.95	0.88

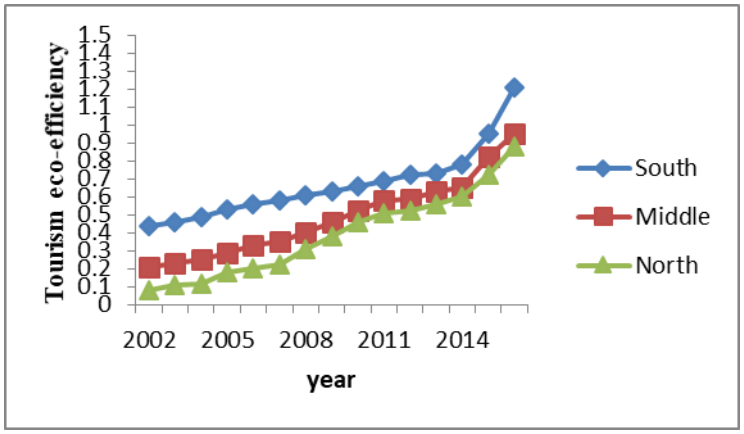

Fig. 1. The dynamic changes in the ecology efficiency of tourism in three regions in Jiangsu

Data, the China Tourism Statistical Yearbook, and the China City Statistical Yearbook and related official websites.

Analysis of Jiangsu Tourism Ecological Efficiency

Based on the super-efficient DEA model, the relevant data was used to measure the regional ecology efficiency of Jiangsu from 2002 to 2016. The results are shown in **Table 2**.

Table 2 shows the ecology efficiency of each region in Jiangsu. **Fig. 1** shows the trend of changes in tourism ecology efficiency. From 2002 to 2016, the level of tourism ecology efficiency in various regions has risen rapidly in recent years. There is a certain difference in the total ecology efficiency of each region. Use the above model to measure the regional ecology efficiency values and draw a line graph as shown in **Fig. 1**.

As can be seen from **Fig. 1**, from the perspective of overall tourism ecology efficiency in the Southern Jiangsu, Central Jiangsu, and Northern Jiangsu economic regions, the regional ecology efficiency is quite different. The three regions have shown an overall upward trend since 2002, and in 2013, at the beginning, there has been a rapid growth trend. This is mainly because with the development of the economy, the people's income level has improved; the people have paid more attention to healthy life and more sustainable economic development. Therefore, more environmental protection and local government efforts have achieved better results.

CONCLUSIONS AND SUGGESTIONS

Conclusion

In terms of sub-regions, the ecology efficiency of tourism in the South region is the highest, and the ecology efficiency is above 0.4. This is mainly related to the degree of economic development in southern Jiangsu. In recent years, the development of the economy in South Jiangsu has paid more attention to the quality of economic growth. More attention is paid to the improvement of regional ecological efficiency, which is in line with the goal of achieving sustainable development in the region. However, the ecology efficiency of tourism in the Central and Northern

Jiangsu Provinces is significantly lower than that in southern Jiangsu, and the magnitude of change is significantly greater than that in southern Jiangsu. However, the gap with the southern part of Jiangsu shows a declining trend, indicating that the tourism industry in central and the northern part of Jiangsu still focuses on growth. It pays less attention to ecology and its ecological efficiency is lower than that in southern Jiangsu. However, in recent years it has begun to pay attention to ecology. The improvement of efficiency has also seen an upward trend in recent years. The regional economic development in Central and Northern Jiangsu is mainly dependent on the economic growth mode with high energy consumption and high pollution, especially in northern Jiangsu, where environmental pollution is serious, resource utilization efficiency is low, and the ecology of tourism is also brought negative effects. Therefore, the central and North Jiangsu regions must change the mode of economic development and gradually shift to an intensive model with low consumption and low pollution and intensive development, so as to enhance the regional tourism ecology efficiency.

Suggestions

Strengthen regional cooperation and balance regional disparities

With the thinking of the globalization of the tourism industry, we have formulated and improved the industrial policy of "integration of regional cooperation" and actively integrated it into the pattern of cooperation in the "Yangtze River Delta". Efforts should be made to transform the operating mode of traditional industries, promote the sharing of resources, complement each other's strengths, and develop dislocations in each province and city in the province, and optimize and rationally use resources so as to increase the efficiency of factor resources. We will vigorously promote the integration and integration of key resources. By strengthening cross-regional cooperation in tourism projects, perfecting the mechanism for the introduction of talents, and optimizing the structure of tourism supply and demand in the region, we will achieve a leaping catch-up in potential areas of development in Jiangsu Province.

Lead industrial agglomeration and optimize the scale structure

According to the research indicators, at present, the overall scale of the province's tourism industry is generally relatively weak, and the industrial scale effect has not been given full play. Therefore, through the integration of industry chains and the polarization effect of tourism clusters, the coordinated sharing of regional resource elements is promoted. At the same time, we should appropriately increase investment in the tourism industry, improve the infrastructure construction represented by the multi-dimensional system of tourism transport, improve the efficiency of resource allocation, vigorously develop the productive service industry, and improve the modern tourism service innovation system, and effectively promote Jiangsu. The tourism industry has shifted towards clustering, scale, globalization, and intensification.

Increase investment in science and technology to promote integrated innovation

Should increase the investment in tourism science and technology innovation, actively promote the construction of smart tourism industry system, implement the deep integration of scientific research achievements and the tourism industry, strengthen the transformation of results and efficiency of new technologies, new models, and new ideas in the operation of tourism industry, so that technological innovation Become a new engine of tourism economic growth and drive the sustainable development of the tourism industry.

Low-carbon management of the whole process of tourism products

From the perspective of the life cycle, through analysis of all links of tourism products from design, production and consumption to post-consumer product collection, disposal, or recycling, we seek ways to replace low-efficiency products and extend the life cycle. We will use low-carbon technologies and low the concept of carbon is used in the planning, development, management and operation of tourist attractions, hotel hotels, tourism transportation and tourism projects to improve the ecology efficiency of tourism. Reducing the high-carbon factors in the production, sales, and consumption of tourism products, allowing only a small amount of CO2 to enter the natural ecosystem, and resolutely eliminating boiler heating that lags behind old tourist attractions, hotels, and catering companies that rely mainly on coal and thermal power generation. The system will gradually introduce clean and renewable energy sources such as wind power, solar energy, geothermal energy and biological energy into the standards and requirements of tourist attractions and hotels and restaurants to evaluate A-level scenic spots and star-rated hotels.

Institutional innovation, establishment of cross-regional eco-tourism industry mechanism

The construction of ecological civilization clearly requires that the social system be scientific and reasonable. The government plays an extremely important role. It is embodied in the following two aspects: first, to solve the problem of market failure, and second, to ensure the continued stable operation of the market. In the development of the tourism industry, we should coordinate relevant agencies to achieve overall planning and management of the tourism industry and promote the development of the eco-tourism industry in a sustainable direction. At the same time, the integration of resources among various regions should be strengthened to form a cross-regional eco-tourism industry mechanism, which provides conditions for the sustainable development of the eco-tourism industry.

The coordinated development of the ecological environment and tourism economy

We should Extending the tourism industry chain, enriching the tourism product types, increasing the added value of tourism, and enhancing the ecological efficiency. At the same time, with the help of green, coordinated development of new urbanization development plans, we will actively promote ecological construction, introduce new technologies, reduce resource consumption and pollution emissions, and promote the transformation of tourism development to eco-tourism. Profoundly understand Xi Secretary General's development concept of "Green Mountain and Gold Mountain" to protect green mountains and green mountains and create a "beautiful economy" in order to reap the "ecological dividend" and inject a steady stream of momentum into the healthy and sustainable development of the tourism industry.

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