

Research on the Development of Sports-Related Tourism Industry from the Perspective of Low Carbon Economy

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Keywords: Low-carbon economy, Sports tourism industry, Industrial development direction

Abstract: Low-carbon sports tourism is a new form of sports tourism proposed in the context of economic transformation, and its development prospects are relatively broad. The paper briefly summarizes the low-carbon economy, sports tourism and leisure sports, expounds the role of developing low-carbon leisure sports tourism, analyzes the factors restricting low-carbon leisure sports tourism, and proposes countermeasures for developing low-carbon leisure sports tourism. Healthy and sustainable development of low-carbon sports tourism.

1. Introduction

As the process of industrialization continues to accelerate, global carbon dioxide continues to increase, causing a greenhouse effect that seriously affects the development of human society. With the continuous improvement of people's quality of life, the requirements for the environment are getting higher and higher, so the low-carbon economy came into being. Developing a low-carbon economy can promote sustainable development in all industries. China's modernization process is developing faster and faster. By developing a low-carbon economy, it can effectively transform the economic development mode and promote the upgrading of the industrial structure. In the low-carbon economy, low-carbon sports tourism is one of its basic industries. The low-carbon form of sports tourism has been favored by major cities. It can combine local culture through technology and low-carbon tourism, which greatly promotes the improvement of local economic benefits.

2. Overview of low carbon economy, sports tourism and leisure sports

2.1 Low carbon economy

The low-carbon economy is an eco-economic model based on low energy consumption, low emissions, and low pollution. It is proposed when the global warming gradually forms a greenhouse effect and poses a great threat to people's survival and development. Under the guidance of the concept of sustainable development, it can reduce high-carbon energy consumption such as oil, coal and wood through various means such as technological innovation, industrial transformation, perfect system, low-carbon environmental protection and new energy development. The low-carbon economy is an economic development pattern that reduces harmful gas emissions in production and life and achieves sustainable economic development, ecological and low-carbon environmental protection. It is characterized by an economic development system that aims to reduce carbon emissions, including low-carbon energy, low-carbon technologies and low-carbon industries [1].

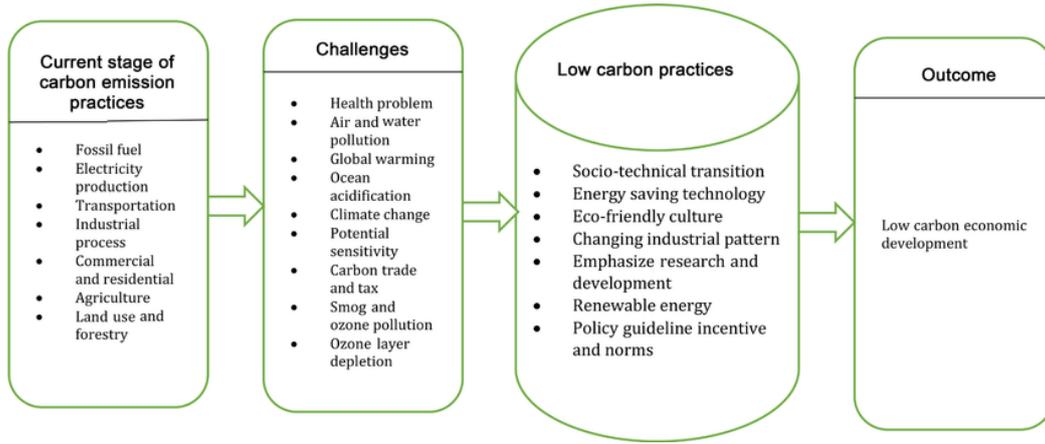


Figure 1. Low carbon economy development model

(1) Kaya formula

From the connotation of the low-carbon economy, the structure of the low-carbon economy model plays a key role in the measurement of carbon emissions, and analyzes the major components of carbon emissions in the process of economic development (industry, transportation, construction, service, and life, etc.). Correlation between content; demonstrating the relationship between different energy use and CO₂ emissions is important to capture the core of the problem.

According to the definition of low carbon economy, the simple formula for calculating CO₂ emissions can be expressed as:

$$CO_2 = K \cdot E \quad (1)$$

In the formula, E is the energy consumption of different types, which can be converted into standard coal according to the standard, and the coefficient K is the carbon emission intensity or the CO₂ emission coefficient. The coefficient K is different for different countries and regions, different technical conditions and energy structure. In this calculation, it is assumed that no large energy structure adjustment has been made due to the short time selected. The K value is constant, and the study of low carbon problems translates into research on energy use and simplifies calculations. To this end, Japanese scholar Mao Yangyi proposed the famous Kaya formula [2]:

Carbon emissions = population × GDP per capita × energy consumption per unit of GDP × carbon emissions per unit of energy use.

(2) Low carbon economy model

As can be seen from the Kaya formula, the factors driving carbon emissions are: population, GDP, energy consumption, and carbon emissions per unit of energy use. This kind of CO₂ emission is based on the overall calculation method, which is obtained by using the per capita GDP index, the energy consumption per unit of GDP output, and the conversion ratio (K) of CO₂ and energy. The actual situation of KAYA formula and statistical data collection, A model for measuring CO₂ emissions can be established. The formula is expressed as:

$$CO_2 = GDP_1 \cdot K_1 \cdot E_1 + GDP_2 \cdot K_2 \cdot E_2 + \dots + GDP_n \cdot K_n \cdot E_n \quad (2)$$

Where n is a natural number, representing the number of industries; GDP is the regional GDP; E_n is the energy consumption per 10,000 yuan of GDP in the nth industry; K_n is the carbon emissions per unit of energy used in the nth industry. Different energy sources have certain differences in carbon emissions. Here, different energy sources will be converted into standard coal in the calculation. The carbon content of coal is about 60%-90%. According to China's coal utilization ratio, the National Development and Reform Commission recommends a value of 67%, that is, 1kg of standard coal. The combustion emits 0.67kg of carbon, and the ratio of CO₂ to C is 3.67, so the K_n coefficient is set to 2.4589; however, internationally, due to different technical levels, it is recommended to use 2.67 in underdeveloped areas.

Consider the carbon sink effect of the ecosystem. In low-carbon development, ecosystems such as forests can effectively absorb and store CO₂, reducing the release of CO₂ from production and consumption into the atmosphere. Therefore, the model adds additional emission reduction calculations, and the model is modified to:

$$CO_2 = GDP_1 \cdot K_1 \cdot E_1 + GDP_2 \cdot K_2 \cdot E_2 + \dots + GDP_n \cdot K_n \cdot E_n - C_F \quad (3)$$

Where C_F is the annual forest carbon sink: $C_F = (1+\alpha) \sum (S_{ij} \times V_{ij} \times \delta \times \rho \times \gamma)$; S_{ij} is the area of the j th forest in the i th region; C_{ij} is the i th region Forest carbon density of type j forest type; V_{ij} is the unit volume of forest type of forest type j in i type area; α is carbon conversion coefficient of understory plant; δ is biomass expansion coefficient, ρ is volume coefficient; γ is Carbon content.

In the process of calculating the carbon sink potential of forests, various conversion factors take the default values of IPCC: (1) the expansion factor of forest resource accumulation, which is the function of converting tree stocks into tree-based bioaccumulation, internationally IPCC default value is 1.90; (2) carbon content, which is the conversion factor for converting biomass dry weight into carbon fixation, the international common IPCC default value is 0.5; (3) bulk density, the coefficient is for The total biomass storage of the forest is converted into a thousand conversion factor, and the IPCC default value is 0.5; (4) The conversion factor of plant carbon fixation is 0.195, which is used to calculate the carbon sequestration of understory plants based on forest biomass [4].

2.2 Low carbon sports tourism industry

As one of the hotspots in recent years, sports tourism first appeared in the British mountaineering club in 1857, which shows that sports tourism developed relatively early in western developed countries. Sports tourism really started in China in the 1980s. Especially since 1994, the annual income of sports tourism in China has increased by 30%-40%. With the successful hosting of the 2008 Beijing Olympic Games in China, China's sports tourism economic industry has gained a new development platform and has reached a higher level [5].

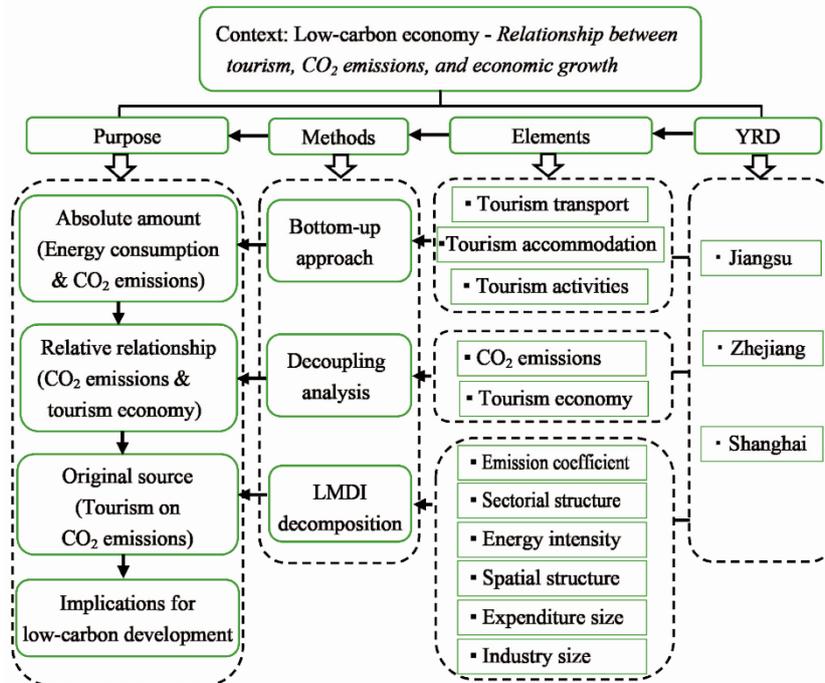


Figure 2. Low carbon sports tourism development model

The concept of low-carbon development is to respond to global warming trends and to encourage people to reduce greenhouse gas emissions in their daily production processes in order to ensure their living environment. With the popularization and application of the low-carbon concept, tourism has been the focus of the world, and low-carbon tourism has become a green tourism that aims to achieve lower pollution, lower energy consumption and lower emissions. Low-carbon sports tourism

refers to the use of low-carbon, ecological and civilized concepts to guide tourists in various sports-related tourism activities in the development of sports tourism. This is a new type of tourism development model that effectively reduces carbon emissions, emphasizes environmental protection and benefits.

3. Constraints on the development of low carbonization in sports tourism industry

3.1 The low-carbon development awareness of the sports tourism industry is weak

The interest game of the interests of all parties is one of the important factors affecting the development of sports tourism industry. Judging from the current actual situation, in order to obtain greater benefits in the development of various stakeholders, the concept and awareness of low-carbon concepts and green tourism are relatively weak. In the development of related products and industrial development, relevant tourism units and departments should closely focus on low-carbon policies, adopt low-carbon measures and low-carbon technologies for product development and improve their development capabilities. However, the development of low-carbon sports tourism requires a lot of money, which means that it requires a lot of cost. At the same time, local governments have paid insufficient attention to the development of low-carbon economy and green tourism due to pressure on political achievements [6]. All of these factors will have a negative impact on the development of low-carbon sports tourism to varying degrees.

3.2 Low-carbon sports tourism industry lacks the driving force for sustainable development

In the process of sports tourism development, there are great advantages in many aspects. However, the development of the traditional sports tourism industry has been unable to meet the low carbon requirements put forward by modern society, and the goal of sports tourism development cannot be achieved to a large extent. Sports tourism developers did not take into account the carrying capacity of the natural environment in this process, resulting in greater damage to the environment during the development of sports tourism. The lack of sports tourism talents and low-carbon talents has affected their development. At the same time, the public and the tourists from all regions do not fully realize the impact of the development of low-carbon economy and low-carbon sports tourism on people. Therefore, all parties concerned with government departments should be dedicated to the promotion of all aspects of the society. In terms of propaganda, it has not yet achieved results, affecting the development of low-carbon sports economy.

3.3 Low carbon technology and low carbon sports tourism industry chain overall high carbonization restrictions

The development of low-carbon tourism is affected by different factors. The society's cognition of low-carbon economy and the low-carbon technology of the whole society are the most important factors. At the same time, the development of sports tourism industry will involve many related industries, for example, it will directly affect the transportation industry and the catering industry. As well as various industries such as sports products, they have a joint effect. From the current actual situation, in the development of low-carbon sports tourism, for the upstream and downstream industries, the promotion of low-carbon technology is still very insufficient, which has a negative impact on the entire low-carbon tourism industry chain. Government departments must take a comprehensive view of the overall level, consider low-carbon sports tourism on the basis of various factors, and develop sports tourism industry according to the corresponding steps.

4. Countermeasures for developing low-carbon leisure sports tourism

4.1 Increase the promotion of low-carbon tourism and transform the traditional mode of leisure sports tourism

Low-carbon tourism is a deeper manifestation of environmental tourism and green tourism. It is necessary to carry out various publicity and popularization of low-carbon tourism. In the process of publicity, the “carbon footprint” was introduced into the psychology of sports tourists. The “carbon footprint” comes from an English “Carbon Footprint”, which refers to a person's “carbon consumption” (natural resources such as petroleum, coal, wood and other carbon-based elements) and the impact of behavior on the natural world. Through publicity, sports tourists are aware of the role of low-carbon, so that they can become a member of low-carbon sports tourism consumption, so as to better protect and utilize the various tourism resources that nature has given us. In the process of propaganda, we first change the existing sports tourism mode of sports tourists, and vigorously advocate some low-carbon forms in the process of sports tourism. For example, the nearer areas can promote public transportation, bicycle or hiking, and the distant areas can choose Hybrid vehicles, electric vehicles and other low-carbon or carbon-free methods, thereby reducing the "carbon" emissions, adding various types of leisure sports to tourism projects to attract tourists' interest, while improving the technical aspects of energy conservation and emission reduction, Thereby reducing the consumption of carbon, and finally forming a cycle of low carbon economy mode.

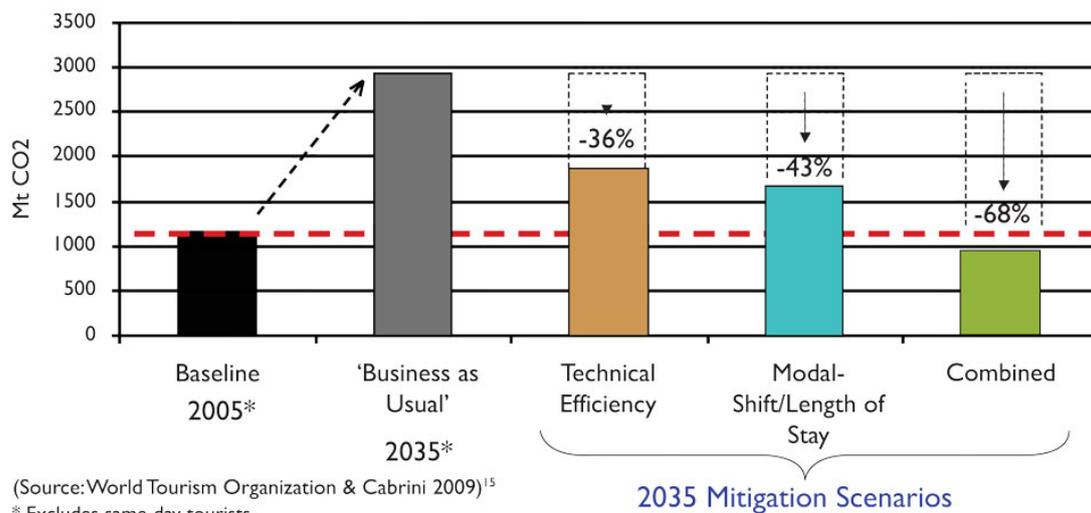


Figure 3. Trends in carbon emissions from the sports tourism industry from 2005 to 2035

4.2 Innovative production factors of sports tourism industry

In order to promote low-carbon sports tourism, it is necessary to design products according to specific conditions. The design and innovation of sports tourism products must combine low-carbon economic policies and low-carbon technologies, and adopt innovative thinking to develop sports tourism products. It is necessary to take advantage of the advantages of the Yangtze River Delta economic circle, and increase the development of low-carbon tourism products in light of specific situations. With the concept of low-carbon economy, we use various technologies related to low-carbon economy such as environmental protection and clean production to develop products. Specifically, in the development of the sports tourism industry, it is necessary to further standardize the construction of tourism sites and infrastructure, and promote and promote the development of the sports industry with the concept of low-carbon economy [7]. At the same time, in the development of low-carbon tourism industry, we must further strengthen and strengthen the construction of low-carbon talents and green tourism talents, attract relevant talents through various policy concessions, and improve the talent policy for the development of low-carbon sports tourism industry. At the same time, it is necessary to train the existing talent team and cultivate the low-carbon concept and related technologies of tourism talents.

4.3 Establish a low-carbon environmental protection concept and give low-carbon sports tourism policy support

By promoting various policies, the environmental awareness of people building a low-carbon economy is the basis for developing low-carbon sports tourism. Protecting the ecological environment of low-carbon sports tourism is the core content of developing low-carbon sports tourism, and it is also a low-carbon sports tourism. Different from the main features of other travel methods. Developing a low-carbon concept to abandon and reform the blind development of sports tourism in the past, paying attention to the construction of a low-carbon economic system, and taking the road of low-carbon sports tourism development in the modern era, scientifically and rationally developing various natural resources, and maintaining the original ecology and natural nature of sports tourism. Develop sports tourism economy [8]. If you want to do a good job in low-carbon sports tourism, you must adhere to the path of scientific, standardized, and ecological sustainable development. Under the joint guidance of the State Sports General Administration and the National Tourism Administration, the relevant policies for accelerating the development of low-carbon sports tourism will be formulated, and the rapid, healthy and harmonious development of low-carbon sports tourism will be promoted through the promotion and guidance of policies.

4.4 Adjusting the structure of sports tourism industry

First of all, all regions in the economic development are combined with the characteristics of the localities to adjust the industrial structure. The same is true for the sports tourism industry. In other words, we must adjust and optimize the sports tourism industry and other industries. In the development of sports tourism, we must fully consider the relevant policies of the low-carbon economy formulated by the state, integrate the concept of low-carbon economy into industrial integration, and focus on the development of sports tourism industry to improve the development of sports tourism. s efficiency.

4.5 Optimizing the layout of sports tourism industry

First of all, it is necessary to optimize and layout the industry based on the existing resources, and to improve the market competitiveness of the sports tourism industry. In the layout of the sports tourism industry, it is necessary to use the relevant methods and technologies to combine sports tourism and low-carbon economy to develop the industry in accordance with various low-carbon policies of the international and Jiangsu provinces. Secondly, in the development of sports tourism industry, we must take the concept of low-carbon economy and combine relevant policies to vigorously develop industrial clusters, promote the development of low-carbon sports tourism through the development of industrial clusters, and improve the market of industrial clusters and low-carbon sports tourism. Competitiveness and development capabilities. In the process of project development, tourism enterprises must adopt innovative ideas as the development concept, and through continuous innovation to improve the quality of low-carbon tourism products and achieve development goals through the development of industrial centralization. Moreover, the development of sports tourism will also enable other industries to develop rapidly and achieve overall economic growth.

5. Conclusion

From green sports tourism to the development of low-carbon sports tourism, it is not a region or a department that can be completed in a short period of time. It is a systematic project formed by the government to unite multiple departments, and it is continuously improved throughout the implementation process. Innovation. In the development process of low-carbon sports tourism, the sports department, the tourism department and its related industries need to integrate development and strive to explore innovation in the long-term development process. In the process of developing the sports tourism industry, it is necessary to make overall plans according to the actual situation of the locality, and integrate with other related industrial chains. In the process of developing

low-carbon sports tourism, it should communicate with developed regions to absorb its high-quality low-carbon environmental protection. Experience and combine local realities to develop and implement a low-carbon sports tourism business model that is most suitable for your place. Only through continuous exploration and continuous innovation can we achieve healthy and sustainable development of sports tourism under the background of low-carbon economy.

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