On Low-carbon and Its Realization in Tourism

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Abstract. Global warming, caused by rising concentration of carbon dioxide and other greenhouse gases, has made great damage to the earth ecological environment. Low carbonization has become an inevitable trend of social development. Developing low-carbon economy, promoting low-carbon life and reducing carbon emissions have become the target and responsibility of all countries in the world. Tourism is a comprehensive human activity, a comprehensive experience of material civilization and spiritual civilization. Low-carbon tourism, as a new type, is a practical need to protect ecological environment and realize sustainable development. Starting from connotation of low-carbon as well as low-carbon tourism, the paper fully analyzes and expounds the necessity of developing low-carbon tourism. On this basis, it puts forward some concrete implementation paths for developing low-carbon tourism.

1. Introduction
In November 2009, The World Low Carbon and Eco-Economy Conference & Technical Exposition Committee was held in Nanchang, China. The conference issued the "Nanchang Declaration", striving for a combination of low-carbon economy mode and low-carbon lifestyle to achieve a transformation of human survival and development. In December 2009, the State Council of China issued the “Opinions on Accelerating the Development of Tourism Industry”, clearly proposing low-carbon tourism mode. In December 2009, Shenzhen held a Summit Forum for Tourism Industry Development. The scholars participating in forum believe that “low-carbon tourism” will become an emerging and important tourism development mode in the near future which will definitely promote the healthy and sustainable development of tourism industry. In July 2010, NDRC (National Development and Reform Commission) listed “developing a low-carbon economy” into one of eight major priorities in the “Twelfth Five-Year Plan”. Undoubtedly, low-carbon has become the inevitable course for transformation and upgrading of tourism industry.

2. Low-carbon and Low-carbon Tourism

2.1. Low-carbon
Low carbon, which means lower emissions of greenhouse gases (mainly carbon dioxide). Due to human activities, especially the mining and burning of coal and other fossil energy, the content of carbon dioxide gas in atmosphere has increased sharply, leading to global climate change with climate warming a
s the main feature. The water vapor, ozone, carbon dioxide and other gases in the atmosphere can heat up the earth's surface through the short-wave radiation of the sun, and at the same time prevent the earth's surface from emitting long-wave radiation into space, thus making the atmosphere warmer. Carbon dioxide, with its large global emissions, high warming effect and long life cycle, has the greatest impact on climate change. In addition to carbon dioxide, other gases include Methane, N2O, HFCs, PFCs, and Sulfur hexafluoride.

The concept of low carbon was put forward in the context of actively responding to global climate change and effectively controlling greenhouse gas emissions, especially reducing carbon dioxide emissions. In this context, a series of new concepts and policies have emerged, including "carbon footprint", "low-carbon economy", "low-carbon production", "low-carbon development", "low-carbon life", etc.

2.2. Low-carbon Tourism

Low-carbon tourism refers to a brand new tourism development mode that applies the theory of low-carbon economy to develop and utilize tourism resources and environment based on the principles of low energy consumption, low pollution and low emissions during the operation of the tourism system, so as to realize efficient and low consumption of resource utilization and minimize environmental damage.

From the perspective of tourists, low-carbon tourism means reducing "carbon". In this way, tourists should try their best to reduce carbon dioxide emissions in their activities. That is, green travel based on low energy consumption and low pollution is advocated to minimize the carbon footprint and carbon dioxide emissions during travel.

In some degree, low-carbon tourism can be viewed as a deeper level of environmental tourism, which has two meanings: (1) low carbonization of tourism production. For the tourism industry, low-carbon tourism is actually a profound energy economic revolution in economic field. Tourism enterprises should actively use new energy and new materials, widely use energy conservation and water saving technology, carry out efficient lighting renovation, reduce greenhouse gas emissions, develop circular economy, drive technological progress in tourism industry, improve the resource productivity of the whole industry chain. (2) low carbonization of tourism consumption. For tourists, low-carbon tourism is actually a low-carbon lifestyle, in which carbon footprint and carbon dioxide emissions are reduced as much as possible.

3. The Necessity to Develop Low-carbon Tourism

According to research, the average surface temperature of the earth has increased by 0.74 degrees Celsius over the past 100 years and is expected to rise by 1.1-64 degrees Celsius by the end of 21st century. Studies have also shown that if the temperature rises above 1.5-2.5 degrees Celsius, 20%-30% of plant and animal species in earth will be at risk of extinction. It can be seen that human’s sustainable development has been seriously threatened by global warming. Therefore, it has become a major challenge confronting us to combat climate warming together.

3.1. The Inevitable Choice to Realize the Sustainable Development of Tourism

Tourism is praised as a low-carbon industry, but it still has a certain impact on climate change and energy consumption. Transportation and accommodation industries, which account for most of the carbon emission of tourism, have a large space for energy conservation and emission reduction. According to the prediction of WTO (World Tourism Organization), China will become the world's largest tourist destination and the fourth largest source of tourists by 2020. But if we continue to operate in traditional ecological tourism mode, there will be many disadvantages. Low-carbon tourism has more abundant and clearer connotation than eco-tourism, which is an inevitable choice for the sustainable and healthy development of tourism.

The development of low-carbon tourism is based on carbon dioxide emissions through the control of carbon emissions to protect the environment and maintain the sustainable development of tourism. Currently the negative effects brought by the development of tourism industry are obvious to all. For example, during the process of tourism resources development, there exists some severe problems such as
forest destruction, soil erosion and environmental pollution. In addition, due to lack of environmental protection awareness of the public, a lot of garbage are produced during tourism activities. Therefore, developing low-carbon tourism is an important form of sustainable development in tourism industry.

3.2. The Important Way to Realize Low Carbon Economy
Derived from the concept of low-carbon economy, low-carbon tourism is a new concept of development. As we all know, Tourism is an umbrella concept and a comprehensive industry which consists of six elements, namely, catering, accommodation, transportation, sightseeing, shopping and amusement. These six elements belong to different categories of tourism enterprises, such as travel agencies, tourist hotels, scenic areas, tourism vehicle and ship companies and tourism business companies, etc. In addition, tourism has a close connection with other relevant industries, so it has a strong driving force, which promotes the development of its related industries to a certain extent. Therefore, we should vigorously develop low-carbon tourism, give full play to its industrial driving role, and realize the low-carbon development of related industries, so as to promote the development of low-carbon economy.

3.3. The Inherent Requirement for Global Climate Mitigation
Tourism is a fragile industry; the smooth development of tourism is largely affected by the climate. For example, global warming, melting glaciers and rising sea level will bring about a number of natural and ecological environmental problems, such as the shrinking of coastal beaches and wetlands, the loss of mangroves and coral reefs, and the extinction of rare species. All of these will affect the tourists' choice of destinations. In order to realize the long-term development of tourism, we should alleviate the increasingly severe climate problems. The low-carbon development of tourism can help to reduce carbon emissions and contribute to solve the global climate problems. It is the best choice to alleviate the global climate problems.

3.4. The Effective Way to Achieve Energy Conservation and Emission Reduction
In recent years, following the development of economy, global climate and environmental problems have become more and more serious. Meanwhile, China is also facing serious energy crisis and environmental pollution. In this context, China has attached great importance to energy conservation and emission reduction, ecological environment protection and sustainable economic development. It is realized that energy conservation and emission reduction is a long-term and arduous project, and tourism will play an important role. At the same time, at the climate summit held in Copenhagen, China made such a commitment: in the next 11 years, China's per unit GDP will help to reduce carbon emissions by 40% - 50%. In the opinions on accelerating the development of tourism published in the same year, we firmly advocate the way of developing low-carbon tourism, promote the realization of tourism energy conservation and emission reduction actively, and strive to reduce the water consumption and electricity consumption of hotels and A-class scenic spots by 20% in the next five years. To respond to the requirements of low-carbon economy and develop low-carbon tourism is not only the inevitable requirement of tourism development, but also an important way to improve the quality of tourism and maintain the sustainable development of environment. It can be seen that the development of low-carbon tourism is an important means to achieve energy conservation and emission reduction in China, and it is imperative to implement and vigorously develop low-carbon tourism.

4. The Implementation Path of Low-carbon Tourism
To be specific, the implementation path of low-carbon tourism should be composed of low-carbon tourist attractions, low-carbon tourist facilities and low-carbon tourist consumption modes.

4.1. Create Low-carbon Tourist Attractions
The low-carbon tourist attractions can be either natural low-carbon environment or man-made low-carbon facilities, such as wetland parks and low-carbon industrial estates. The measures of creating low-carbon tourist attractions mainly include: fully exploit and tap the tourism value of natural high carbon s
ink resources, such as forests, oceans, wetlands, lakes, etc., and realize the tourism value through scientific tourism development modes to attract tourists; Planning low-carbon tourist products with low energy consumption and pollution; Establishing low-carbon industrial parks, low-carbon communities, low-carbon campuses, etc., and transform them into popular tourist attractions through a series of tourism packages.

4.2. Construct Low-carbon Tourist Facilities
Low-carbon tourist facilities include tourism traffic facilities, environmental sanitation facilities, energy supply facilities, special service facilities, and so on. For example, building ecological parking lots in scenic spots, providing tourists with low-carbon vehicles, such as battery cars and new energy vehicles; Establishing ecological toilets, ecological garbage cans, and environmental friendly facilities of low-carbon tourism in the scenic areas. New energy supply systems can be built with the help of renewable energy sources, such as solar energy, wind energy and hydro-energy. In addition, we can also build low-carbon hotels, low-carbon restaurants, etc. In a word, all the infrastructure that people need in the process of tourism should be low-carbonization as far as possible.

4.3. Advocate Low-carbon Tourist Consumption Mode
Firstly, advocate low-carbon tourism traffic. Encouraging tourists to choose the ways of low-carbon transportation when visiting scenic spots, such as walking, cycling or taking new energy sightseeing buses and so on. Secondly, advocate low-carbon accommodation and catering. When choosing foodstuff, try to choose green and ecological food as far as possible and reject disposable catering tools and choose a hotel with green mark. Thirdly, promote low-carbon activities.

5. Conclusion
With the popularization of low-carbon concept, tourism, as an important part of the tertiary industry, should become an organic part of low-carbon economy. It is not only a new slogan put forward by human beings to protect the earth, but also the ultimate goal of pursuing a healthy life and realizing sustainable development in the post-industrial era. Carrying out the low-carbon tourism marks the development of traditional tourism beginning to transform from the extensive form to the form of green and ecological, and it is of great significance to the ecological environment protection and the sustainable development of tourism.

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