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Route Choice of low-carbon industry for global climate change: an issue of China tourism reform

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Abstract

Recent years saw the global wave of new low-carbon economy which is a new strategic measure to cope with global warming, and it has gained lots of concerns from many governments. China is undertaking the “common, but different responsibility for global climate change” and it has made a lot of guidelines of low-carbon economy development. Under this circumstance, as the most potential sector for low-carbon transformation, Chinese tourism becomes the pioneer to try low-carbon industry construction. According to development of Chinese tourism, the authors first discussed the connotation and denotation of low-carbon tourism industry, and then analyzed the feasibility of promotion of low-carbon tourism in China, and finally proposed the policy design and development idea for low-carbon tourism economy in the aspects of different subjects of government, tourism area, tourists etc.

Keywords: low-carbon economy; low-carbon tourism; government; China tourism industry

1. Introduction

Since United nation framework convention on Climate change in 1992 and Tokyo Protocol in 1997 starting systematic discussion of low-carbon economy, to British President Mr. Tony Blair initially proposing the conception of “Low-carbon economy” in resource white book 《Our energy future: establishment of low-carbon economy》 in 2003, developing low-carbon economy has caught increasing attention all over the world[1]. European Union has taken the lead to promise, in 2020, to decrease pollutant emission by 20% over 1990. While Japan decided to make the first “low-carbon society” of the
American government declared to sign the new climate change regulation and proposed to “rule the maximal limit of carbon emission and trade regulation” to control green house gas emission. As the first to make and carry out《National scheme to manage climate change》in the world, China declared its target of emission reduction in 2008 Climate Change conference of United Nation in Copenhagen. It is, in 2020, the emission of Unit GDP CO₂ will be reduced by 40~45% over 2005. Non-petrochemical energy will reach 15% of primary energy, and forest area will increase 40 million hectares, reduction of carbon emission will start in the year of 2050. So China suffers great international pressure in the procedure on establishment of international climate regulations [2].

A number of exemplary community-based programmers adopted an integrated approach to address both technical and behavioral dimensions to low carbon communities in Australia [3]. Daniel and Sonia believed that a harmonized international framework was needed to build newly enacted LCFS policies adopted in California and European Union [4]. On May 2008, Kyoto city government set up a low-carbon target of a 50% GHG reduction in 2030 compared to 1990 level [5]. Liu & Gallagher considered that there were two key questions to be addressed to develop a low-carbon economy in China: how to use coal in a carbon-constrained future and how to increase Chinese oil supply to enhance energy security [6]. Eva Heiskanen analyzed the strengths and weaknesses of various community solutions, implications were therefore drawn for further research and for the design and support of low-carbon communities [7].

2. Low-carbon economy and Chinese tourism development

Low carbon economy is an economic model, energy consumption method and a life style on high efficiency, productivity and benefit based on low consumption, emission and pollution. Its essence is the issue of effective utility of energy, development of clean energy and pursuit of green GDP with the core of energy and emission reduction technology innovation, industrial structure and regulation innovation and fundamental change of human ideas on survival and development [8]. Under the efforts of many countries, there worked out two systems to realize low-carbon economy: hardware system and software system. The former includes three elements such as energy saving, emission reduction, recycled clean energy and the latter refers to five parts, that is policy, regulation, management, index and ideology [9].

China tourism revenue is 11.6 thousand billion Yuan in 2008 which increases by 5.8% over previous year. And revenue from Chinese tourists reaches 874.9 billion Yuan, and inbound tourism income is 283.9 billion Yuan. The statistics proves that inbound population of 130.03 million is down by 1.4% over previous year, income of international tourism is 40.8 billion Yuan with reducing by 2.6% of previous year. Tourists in China reach the population of 1.712 billion with increasing 6.3% over previous year in average 1.3 times of travel for each person. What’s more, tourism income in China is 874.9 billion Yuan with increasing by 12.6% over previous year with individual expense of 511 Yuan. In the whole year of 2008, outbound travel of Chinese citizens reaches the population of 45.84 million with increasing by 11.9% over previous year [10]. China has become the fourth biggest inbound tourism country and biggest tourists’ source country in Asia, and it ranks No. 3 in overall world tourism economy. Just as the prediction of World Tourism Association, China will be the biggest destination and fourth biggest outbound tourists’ source in 2015, and it is expected to be No.1 in the following 10 years’ development.

3. Comparison between low-carbon tourism and eco-tourism

At present, many Chinese scholars realized the reform brought by low-carbon economy and its economic growth characteristics. They think low-carbon tourism is the tendency for tourism development [11, 12]. Whatever it is defined, the essence of low-carbon tourism is that the government will advocate and support tourism enterprises to apply low-carbon product, technology and energy to realize low energy
consumption, emission, pollution of tourists’ activity whilst high efficiency and benefit of operation in tourism area, high quality, healthy and satisfactory target of tourism consumption.

Tourism enterprises transfer low-carbon tourism to tourists’ action by the means of tourism mentality enhancement, tourism product design, improvement of tourism reception facility and guidance of tourism means [13]. But there is still a huge difference between eco-tourism and low-carbon tourism.

- **Different development target**

  Eco-tourism was put forward when natural sightseeing tourism grew quickly after 1980. Meanwhile, it conflicts with reservation of natural resource and original residence culture which leads to the overloading in eco-tourism area. Therefore, there comes eco-tourism’s influence on the environment of travel, that is, it emphasizes preservation for natural scenery and a newly sustainable tourism. Low-carbon tourism is an application of low-carbon economic model in tourism, and low-carbon economy is brought forward in global warming settings which emphasizing an era theme, that is, to reduce CO₂ emission to improve global climate so as to protect creature’s living condition on the earth. Low-carbon tourism mainly focuses on “human’s” behavior which includes production behavior of tourism economic subject, consumption behavior of tourists. They have to be responsible for their own living condition which not only requires the influence on natural and social ecology, but also on the whole survival space to work through all the process of production, life and consumption.

- **Different degree of practice**

  As an abstract conception, eco-tourism can only be positioned on abstractive and conceptualized qualitative level of propaganda and eco-design, and it is rather difficult to put it into practice. Low carbon tourism is a brand-new notion and a measure as well. For example, now many websites offer special “calculator of carbon track”. When inputting the information of relevant situation, one’s carbon track on some behavior can be worked out, and sum of carbon track in the whole year can be figured out accordingly [14]. So, low-carbon economy is undoubtedly a clear age of energy saving and emission reduction, furthermore, it is able to guide enterprises operation and tourists behavior by effective quantitative measurement (See Table 1).

### Table 1. Comparison between eco-tourism and low-carbon tourism

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Gist</th>
<th>Eco-tourism</th>
<th>Low-carbon tourism</th>
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<tbody>
<tr>
<td>Common ground</td>
<td>Development direction</td>
<td>Realization of sustainable development of tourism</td>
<td>Global warming is the cause for low-carbon economy application in tourism</td>
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<tr>
<td></td>
<td>Background</td>
<td>Severe destruction brought by tourism to natural environment</td>
<td>It emphasizes “human’s” behavior which includes production behavior of tourism economic subject and consumption behavior of tourists to reduce CO₂ emission to protect living condition</td>
</tr>
<tr>
<td></td>
<td>Focus</td>
<td>On preservation for natural scenery</td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>Applied field</td>
<td>Natural scenery area such as natural reserve, forest park, resort etc.</td>
<td>All tourism fields</td>
</tr>
<tr>
<td>Development feature</td>
<td>Pay more attention on tourists’ restriction and responsible learning</td>
<td></td>
<td>Enterprises in tourism area will actively carry out low-carbon production and planning</td>
</tr>
<tr>
<td>Feasibility</td>
<td>Ambiguous boundary with poor feasibility</td>
<td>It is a qualitative abstract conception, a notion and action guideline</td>
<td>Clear boundary with strong feasibility</td>
</tr>
<tr>
<td>Essence</td>
<td></td>
<td>It is a quantitative executive channel, a display means and a reform of business model</td>
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</table>

### 4. Trial Practice of Low-carbon tourism: Chinese policy framework and development thought

In order to follow the theme of “Low-carbon economy”, Chinese government has taken great efforts. Chairman Hu declared the low-carbon ideas such as “Developing low-carbon economy”, researching and
developing “low-carbon energy technology”, “increasing carbon sink”, “promoting the development of absorbing carbon technology” etc. Shanghai and Zhuhai tried to establish low-carbon experimental city and low-carbon economic demonstration zone. During the period of “12th five-year plan”, Sichuan province planned to reconstruct and develop low-carbon tourism and paid more attention to the hotel, scenery spot, green city, green tourism enterprise and tourist behavior [15]. The authors try to propose suggestions on low-carbon tourism development in the aspects of three beneficial subjects.

4.1. Confirmation of Government’s Role

Government branch plays a significant guiding and supporting role in developing low-carbon tourism.

- It can introduce relevant plan and scheme of low-carbon tourism to relative government sector, tourism enterprise and the public with mass media and public relations with the purpose of fostering positive low-carbon tourism awareness from residence, enterprise and government. Therefore, there helps to form a climate of low-carbon tourism consumption and environmental-friendly purchase habit to guide the public into the trend of low-carbon tourism.

- It will establish and complete relevant low-carbon tourism management regulation, rule, law and tourism development plan to carry out legal management for low-carbon tourism and monitor low-carbon tourism behavior of tourism enterprise, industry and tourists to build favorable climate and structure for development low-carbon tourism.

- It is able to lead, demand, control, coordinate and manage low-carbon tourism in tourism industry by establishing various low-carbon tourism departments and making relevant management mechanism.

- It will guide and motivate more social capital involvement in low-carbon tourism by encouraging more funds for low-carbon tourism economic development.

- It can establish an inspection and monitor committee in low-carbon tourism area, set up selection and evaluation criterion of low-carbon tourism area, improve policy and financial supporting mechanism of low-carbon tourism area development, build low-carbon tourism area selection website and technology centre and publicize low-carbon propaganda education plan etc.

4.2. Transformation of Operation Mechanism in Tourism Enterprise

Tourism enterprise is the basic carrier of low-carbon tourism development.

- Restaurants. In terms of architecture material of restaurant, energy-saving bricks are best choice. And hollow wall, roof insulation layer, anti-wind device and double glass windows will be used to construct green restaurant and it can apply for international environmental-friendly standard authentication. In terms of food, people will try to buy seasonal green vegetable, rice and poultry from local farmers. In terms of structure of food type, it can adjust visitor’s diet structure with local food to avoid too much meat and special food to prevent some disease so that to secure visitors’ diet health. What’s more, having clean production, saving water, oil, gas, and coal, offering green catering service, disposal and recycled utility of kitchen refuse, domestic garbage, customer rubbish, oil fume, waste water etc will help to form automatic integrated catering operation model.

- Lodging. Architecture material, energy consumption and service commitment will be sustainably recycled to build low-carbon tourism hotel which can be upgraded to environmental-friendly hotel by ISO14001 authentication. For instance, the material that is cool in summer and warm in winter is the best choice as the architecture materials; which is actually the characteristics of traditional architecture material. In energy consumption, people try to use more recycled clean energy such as wind power, water power and geothermal energy. In physical utility, they will reduce the time of changing and cleaning of linen, use recycled paper, recycle the garbage of guest room and office. In service
commitment, it is suggested that people follow foreign environmental friendly hotel, not offer “six tools” in room and launch the project as “low-carbon environment-friendly points and coupon” to encourage clients low-carbon consumption. In specific details, people try to adjust temperature of air-conditioner from used 26 centigrade to 28 centigrade, and 20 centigrade in fall and winter, equip with some lighting, air-conditioning, fridge and digital television which fits for energy-saving measurement.

- Traffic. In terms of sightseeing forms, trekking mount trail, sightseeing by bike and “roaming” are advocated. For the choice of transportation vehicle, people can try to apply more traditional litter, environmental-friendly electromobile, steamer and carriage etc. Moreover, increasing some vegetation transition zones can help to cut the pollution results from automobile exhaust to offer adequate time and space for self-rehabilitation of ecological natural environment in scenic spot.

- Sightseeing. Managers of destination should offer various eco-tourism facilities, such as ecological washroom and improve tour guiding systems which instruct visitors to have low-carbon activity. Besides traditional brochure and guide pamphlet, destination can adopt mobile communication and internet technology to convey the guiding messages of scenic spot in digital screen instrument and visitor’s mobile phone, or to send uplifting notes anytime and anywhere. What’s more, tourists should choose train or bus on journey, try not to change sheet and towel in hotel, use cloth bag instead of plastic bag, reduce the usage of one-off chopsticks, put the garbage into the recycling place orderly etc.

- Shopping: Tourism daily consumption and souvenir in scenic spot should try to employ various environmental friendly materials and recycled materials, adopt manufacture technique matching with local cultural tradition, clean processing production & manufacture, and reuse those wastes.

- Entertainment. People are asked to reduce waste, save energy, decrease all the noises, and deal with all kinds of garbage scientifically.

Because these strategies will help enterprises save energy consumption, increase energy utility so as to decrease operating cost and build favorable business environment and positive corporate image in future.

4.3. Change of tourist’s attitude

As the consumption subject of tour activity, tourists play the role of beneficiary and expressing subject in the development of low-carbon tourism. They are direct beneficiary of low-carbon tourism means and responsibility expresser of low-carbon tourism as well.

- Consumption behavior. Low-carbon tourism of individual behavior refers to the selection of transportation, tour method, lodging and food etc. For example, tourist can choose to have short distance travel by trekking, bicycle and public transportation and a long run travel by train.

- Community communication of Budget travel. Tourist’s travel dairy can be widely publicized in internet. It is able to make low-carbon tourism consumption notion well-known and encourage more people to join in low-carbon economy to be aware of global climate and start low-carbon lifestyle now. Therefore, tourist is not only the low-carbon consumption subject and its propagandist, but also the inspector in low-carbon tourism area.

5. Conclusion

When promoting low-carbon tourism, it needs efforts from all stockholders including government divisions, tourism enterprise, tourists etc. to practice low-carbon production, consumption and development model into the whole process of tourism activity to eventually realize substantial low-carbon economic growth and lifestyle to achieve double benefit of tourist and tourism enterprise. However, real situation indicates that low-carbon economic development still confronts with many hinder and weaknesses. So haste and blindness should be avoided in low-carbon tourism development which requires
improvement of relevant low-carbon production, national and international regulation and management. What’s more, according to a present United Nation’s investigation on China, it is concluded that “if future policy can pay more attention to overall strategic coordination, sustainability and workability of policy, encourage R&D and promotion of technology, motivate market methods adjustment and promote the innovation of business mode and investment methods, low-carbon market will surely have a faster and more stable growth in China.” So in the procedure of exploring low-carbon tourism reform, Chinese tourism has to solve following urgent problems: management standardization on national low-carbon tourism strategic planning and policy-making, research and development of low-carbon technology and its application in tourism industry, orientation of tourist’s low-carbon tourism consumption propaganda, tourism low-carbon finance market trade and finance support system, quantitative index of low-carbon tourism development and formulation of planning scheme of evaluation standard etc.

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