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The need for environmental policies for mass tourism in islands

A case study of Hainan

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Abstract

Mass tourism has emerged in many islands as holiday destinations. It's a double-edged sword: on the one hand, it brings a lot of economic benefits to these islands; on the other hand, overusing the natural tourism resources makes the environment deteriorated. For developing a sustainable tourism economy, it's necessary to protect the environment. This paper concludes the negative impacts on islands caused by unscientifically-developing mass tourism. For solving these negative impacts, environmental policies are emphasized. This paper takes Hainan (a Chinese island) as a case and try to provide some useful and practical environmental policies for its environmental protection.

1.Introduction

Mass tourism is contradictory since the date of birth. On the one hand, the rapidly-developing mass tourism brings about the economic prosperity,cultural exchange, social integration; but at the same time many negative effects are also expanding, making people unable to turn a blind eye. But we have to admit that even if there are kinds of negative impacts of mass tourism, it's still the mainstream product in the tourism industry around the world and won't be abandoned or replaced. Mass tourism offers packaged tourism products which are convenient and affordable for the majority of tourists. The most widely non-high income tourists are willing to do mass tourism and thus mass tourism generates tremendous economic benefits due to the tourist population base. In this case, what we should do now is to eliminate the negative impacts caused by mass tourism as far as possible, in which environmental problem is one of the most emergent issues and worth discussing. Mass tourism demands a lot on natural resources: landscape for sighting, lands for accommodation, energy such as water and electricity etc. Over exploitation is easily happen if there is no reasonable tourism layout. Although many natural tourism resources are renewable such as water resources, soil etc., once the development rate is over the regeneration rate, they become depletable. In the meanwhile, the waste generated by large numbers of tourists and the bad influence from tourist activities make the environment more deteriorated, which needs more economic cost to offset. More worse, some environmental problems even are irreversible. So taking action to protect environment should be done as soon as possible for getting rid of the unnecessary economic expense.

An island with pleasant climate, beautiful scenery and relaxing atmosphere is easier to become a destination of mass tourism than others. Besides, the high accessibility and effective marketing are the driver to promote the tourism development, like Mallorca, Cancun. Such islands normally are equipped with complete tourism facilities and provide tourists with abundant entertainment activities which can help them escape the daily stress form work and life and capture a deep relaxation. But affordable travel cost is the most crucial reason for islands to develop mass tourism. As mentioned before, mass tourism is favor by non-high income tourists, an acceptable travel cost is the factor weighing most when they make a travel decision. Among the travel cost, the transport fee of arriving and departure occupies a lot, but with the popularity of the low cost airline, the accessibility to an island has been developed greatly, which accelerates the tourism development of islands further. But as an island is isolated by the sea from the mainland, it has a relatively simple ecological structure with less biodiversity, weaker recovery ability after being damaged. And the negative impacts caused by mass tourism is more obvious and serious. So this paper will focus on the negative impacts from mass tourism on islands.

The ecosystem services especially the cultural service contribute a lot in tourism development in islands, which provide the tourism material base to tourists activities, for example the soft beach, the clean and peaceful sea, the mountain suitable for hiking etc. But since these environmental services are non-marketed, the market mechanism of price fails in this sector which leads to overuse of scarce resources and underuse of abundant resources. Also there are negative externalities made by mass tourists but sustained by local islanders. Since the market doesn't work in terms of environmental goods and services, other methods should be introduced. In this paper, that is the government. As the visible hand, the government has the certain power and authority to regulate the use of environmental resources and reduce the negative externalities from mass tourism through various tools. The most common tool used by government is environmental polices.

This paper focuses on Chinese islands and takes Hainan as a case to study what environmental policies the local government can apply for protecting the environment from the perspective of mass tourism. On the one hand, China has the largest population (1.3 billion) in the world. With the development of economy, more Chinese has the financial ability to travel and most of them have realized the consciousness of travel, which have led to the emergence of mass tourism in China. On the other hand, China has abundant island resources. According to the data, there are 11,000 islands in China, in which 437 islands have permanent residents (China's State Oceanic Administration, 2017). In the past, the islanders mainly lived on marines fishing. But as the fishery resources gradually decline, these islands need to look for a new economic industry. Up to now, island tourism is a good opportunity. It creates jobs for local islanders and promotes the economic development. Some islands have developed to popular holiday destinations such as Hainan, Qingdao, Zhoushan etc. But a lot of islands pursue excessively economic benefit from tourism industry, the disorder and unscientific exploitation has caused many environmental problems that need to be solved. Besides, in consideration of the social system in China, the government plays a more important role in public issues like tourism public goods, environmental protection etc. It has the authority and the ability to regulate tourism development to protect the environment and realize the sustainable tourism development in the end. At present, the application of environmental policyies specifically for tourism is less in China, so it's worthy discussing what environmental policies we can apply and integrate them into regional or national tourism polices to promote the sustainable tourism development. Taking into account the environmental problems in islands caused by the consumption model of mass tourism, in this paper, Hainan, one of the most mature holiday destination in China, will be taken as a case to study. Through the research on the tourism situation of Hainan, some specific environmental policies will be presented and offer other islands a practical reference. In a word, as most of islands in China have environmental problems

caused by mass tourism, this paper picks Hainan as an example and concludes some useful environmental policies for moderating environmental problems after analyzing the realities of Hainan.

Firstly, this paper introduces the mass tourism briefly and summarize the typical environmental problems caused by mass tourism in islands. Secondly, it presents Hainan in detail: the tourism resources, the tourism economy and the environmental problems. Nine environmental policies are presented later. This paper ends with the conclusion which summarize the research results.

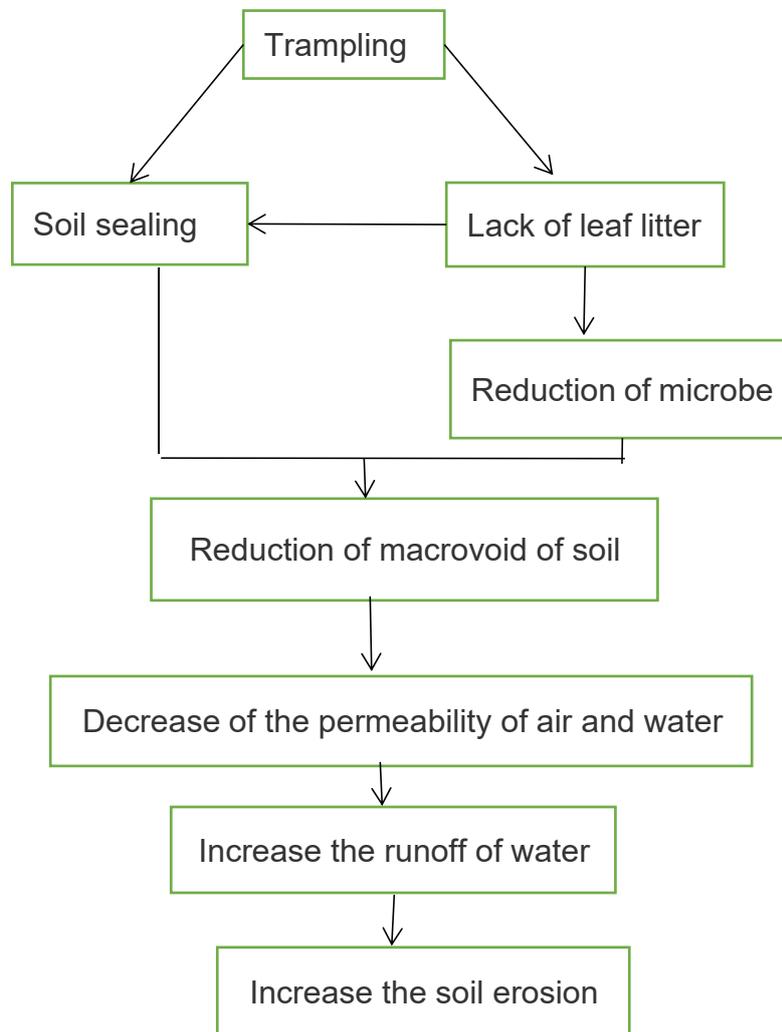
2.The environmental problems caused by mass tourism in small islands

Mass tourism is the act of visiting a leisure destination with large amounts of people at one time. It began after the World War II thanks to the development of economy (higher income, paid holidays etc.) and technology (transportation and Internet). Mass tourism also creates intense environmental pressures due to the fact that such activity involves a large number of tourists in small areas, which is over the environmental carrying capacity consistently. It leads to the direct degradation, pollution, even destruction of elements (air, soils, geology, vegetation, water and wildlife) and ecosystems (coastal, mountains, inland and polar) (Mieczkowski, Z. 1995). Since this paper focuses on islands, the typical environmental problems caused by mass tourism in islands are concluded in the following:

2.1. The problem of soil and vegetation

With mass tourists arriving in the islands, soil and vegetation are damaged. For developing the tourism industry, large amount of hotels, docks, stations, golf courses, roads, bridges and other tourist infrastructures are constructed in the limited island field, resulting in that mass lands are usurped and plenty of forests are disafforested which leads to the decrease of the forest coverage directly, for example in Hainan (China), the forest coverage decreases dramatically from 35% in 1994 to 4% nowadays (Zhang Jianping, 2001). Otherwise, as more tourists trample on soil, the degree of soil compaction increases that can cause a low water permeability, water and soil erosion etc. The chart1 shows the influence process of trampling on the soil. Human trampling also generates a negative influence on vegetation in coastal dune which has a more fragile ecosystem. For example, it showed that the vegetation coverage in coastal dune decreased half after 200 people trampling in the experiment in Jutland (Hylgaard, Liddle, 1981). Hylgaard and Liddle (1981) also indicated that no matter trampling a few days o a few month, they generated a nearly same impact and the damaged dune vegetation recovered very slowly. At the same time, trampling does a destructive damage to the insect community living in the dune vegetation as well.

1 Chart 1 The influence of trampling on soil



Source: Chen (2001)

2.2. The problem of biological species

The habitat fragmentation and human disturbance has led to biodiversity less. The ecological effect caused by large-scale tourism development has been obvious: a lot of wet lands have disappeared along with the relevant animals and plants. Some weaker species are endangered, like turtle that have been effected seriously from the coastal transportation development because there is no place for them to lay eggs. In the meanwhile, for meeting tourists' interest, a large amount of wildlife are killed for eating, specimen collection, decoration etc. Beach clean-up also lower the biodiversity (Llewellyn, Shackley, 1996). Relevant department disposes of decayed seaweeds, occasionally-appeared dead fish and birds which make tourists have a negative impression. But cleaning up the naturally deposited debris of plants and animals have a negative environmental impact.

For protecting the wildlife, the ecotourism has emerged. Tourists try to enjoy the sight of wildlife in a nondestructive way as the concept expressed by “non-consumptive and wildlife-oriented recreation” (Duffus et al.,1990). Tourism activities like whale watch and bird watch are becoming more popular. If operates properly, most of such kind of tourism activities won't generate negative environmental impacts. But excessive demand also brings about the problem. For example, it is reported that the hurt and death number of whale caused by collision with the ships of whale watch is only less than United States Navy (Laist et al. , 2001).

2.3. The problem of water resources

Tourism activities cause a big influence on water environment of island itself and the sea around the island. On the one hand, with more tourists and tourist infrastructures, the consumption of water is increasing gradually over the normal water supply capacity and results in the exhaustion of water resource. What's more, with the drop of fresh water, seawater intrusion can cause a series of pollution. For example, Mallorca, as a popular destination, is facing the water supply problem generated by mass tourism and climatic change (Stephen et al. 2004). Buswell (2011) points out that in order to meet the demand of residents and tourists, over-extraction from aquifers has lower the water table, causing saline intrusion and salt water contamination on the coastal plain. Although various water management initiatives have been introduced during the last decade like the importation of water from the Spanish mainland, desalination plants, eco-tax etc., most of them are not effective because of the economical and political problem.

On the other hand, all kinds of tourism activities carried on islands like fishing, diving, golf etc. pose threat to water resources. The oil contamination from cruise ship leakage, rubbish threw by tourists, sewage exhausted from resort and so on pollute seriously the water resources. An emblematic example is the cruise. A cruise is like a moving village that produces a large amount of rubbish and waste water which are exhausted to sea without any disposal during the operation. According the prediction from the International Maritime Organization, a passenger produces 3.5 kilo rubbish and solid waste; a typical cruise exhausts about 1 million liter sewage during one week voyage (United States Environmental Protection Agency, 2000). Such a large amount of emission makes the marine environment assume more pollution risk and does a damage to the biology living in the sea.

2.4. The problem of air

With the development of transportation especially the low cost airline, the increase of flights produces more polluted gases as well as improves the

accessibility to islands. In the meanwhile, there is another popular tendency nowadays: self-driving. Take Mallorca as an example: the turnover of car rental in Mallorca in 2009 is 140 million euros and there are more than 30,000 cars available for tourism car rental (Buswell, 2011). All these data reflect the huge impact on air caused by self-driving indirectly. No matter airlines, private cars or cruises, they emit more polluted gases like toxic gases, CO₂ etc, which reduces the quality of air.

3. Hainan as a case study

As the most popular tropic island in China, there have been many environmental problems during the development of tourism economy in Hainan, such as the degradation of ecological environment, the reduction of forest resources etc. As the most tourism activities occurred in Hainan is in the fragile areas such as coastal zone, the tourism environmental protection needs considering more. The practical survey (Wu, 2007) of Sanya, Haikou and Qionghai (the cities of Hainan) shows that every city needs to reduce the environmental pollution, decrease the excessive use of resources and repair the deteriorated environment, which can be partly solved by environmental policies.

3.1. Tourism industry in Hainan

For solving the environmental problem caused by mass tourism, we need to realize the situation of tourism industry in Hainan. The geography and demography, tourism resource, tourism economy and related environmental problems will be discussed in the following.

3.1.1. The geography and demography of Hainan

HAINAN province is located in the southernmost area of China. It's the only tropical province in China. As the second largest island in China, its land area is about 35400 km² and the sea area is about 2.1 million km² (Hainan Statistical Yearbook, 2012). As a continental island, Hainan is tall in the middle and lower around, like the shape of a upside-down bowl. Wuzhi mountain, the highest mountain with 1840 meters, centers in HAINAN. Then the landform declines gradually to the surrounding. Now Hainan consists of four prefecture-level cities: Haikou, Sanya, Danzhou and Sansha, the former two cities are the main tourism cities. According the demographic census in 2010 (HAINAN Statistical Bureau, 2010)¹, the population of Hainan is 8.67 million, the male and female occupying 52.49% and 47.41% respectively.

3.1.2. Tourism resources

Hainan is abundant in tourism resources and mainly featured with "3S"(sun, sand and sea). These tourism resources are divided into the following categories:

(1) Climatic optimum

With the advantage of the most southern location, it has a tropical oceanic monsoon climate which makes Hainan enjoy a nice temperature between 22-26°C all year around (Qi , 2009). The proper temperature makes all tourism activities can be carried in a whole year.

(2) Coastal zone

There are more than 1580 km coastline in Hainan, most of them are peaceful

¹ <http://www.hi.stats.gov.cn/tabid/185/InfoID/10414/Default.aspx>

with clean seawater and soft sand. With the addition of bright sunny, it's a ideal place to do the sea-bathing. In addition, the scenery of rocky ledges is spectacular. There are many famous attractions like Yalong Bay, Sanya Bay, Tianya Haijiao etc.

(3) Mountain and typical forest

There are four tropical forest areas in HAINAN. Besides, for protecting those rare animals such as the macaque, the esculent swift and the gibbon, a few of nature reserves are constructed.

(4) Exceptional spring

Hainan also is rich in mineral water resource. The data provided by Bureau of National Territory Resource of Hainan reveals that 33 hot mineral water areas have been found so far. What's more, these found springs are rich in microelement which is high effective in curing cardiovascular disease, adiposis and other disease caused by metabolic disturbance. So the health tourism in Hainan has a promising future.

(5) Distinctive culture

Hainan has rich cultural tourism resources with local characteristics, which is the core of the international tourism island construction. It has many different historical sites: more than 130 human cultural sites of the Neolithic Age (Li, et al., 2011) ancient cities, temples, towers, celebrities' old houses, military relics etc. The diversified folk festivals are another attraction. Every year Hainan holds festivals like Junpo Festival (for commemorating the shero Lady Xian), Longevity Festival, International Weeding Festival and so on.² In addition, the culture of different ethnic minority makes the social more colorful. There more than 30 ethnic minorities living in Hainan, among them, Li nationality, Hui nationality and Miao nationality are the most typical. Every ethnic minority has distinctive character in living house, food, costume, marriage, festival, language and so on, which bring about a totally fantastic experience for tourists. Religious culture also roots in HAINAN. Buddhism is the most influential religion. Besides, there are Taoism and Islam.

3.1.3. Tourism economy

As one of the eight key tourist areas, the tourism of Hainan has experienced a process from scratch. It has become an important pillar industry whose contribution to the development of provincial economy increases gradually.

From 2011 to 2015, Hainan received more than 201 million foreign and domestic tourists cumulatively, generating 221 billion RMB, realizing the average annual growth of 15%. In this period, the added value of tourism occupied 7.6% of GDP, increasing 0.9% compared with in the 2010; total tourism income took up 15.5%, higher 2.9% than in the 2010. The contribution from tourism industry to lodging and catering industry, civil aviation and railway, culture and recreation, commodity retail industry achieved to 90%, 80%, 50% and 40% respectively.

² http://guide.fengjing.com/603015/1395_1.shtml

More than 370,000 people work in tourism industry and 1.4 million people work in the relevant industries drove by tourism industry (Hainan tourism Bureau, 2016)³. As of 2010, there were 540 tourist hotels and 335 travel agencies.

1 Table1 Relevant economic data in tourism industry

Year	GDP(Billion RMB)	Tourism income (Billion RMB)	International tourism income (Million USD)	Number of total tourists (ten thousand)	Number of international tourists (ten thousand)
2005	91.8	12.5	128.5	1516.4	43
2006	106.5	14.1	229.1	1605.0	62
2007	125.4	17.1	302.0	1845.5	75
2008	150.3	18.5	313.8	2060.0	71
2009	165.4	21.1	276.7	2250.3	55
2010	206.4	25.7	322.3	2587.3	66
2011	252.2	32.4	376.1	3001.3	81
2012	285.5	37.9	348.1	3320.3	82
2013	317.7	42.8	337.4	3672.0	76
2014	350	48.5	268.3	4060.0	66
2015	370.2	57.2	248.5	5335.0	61

Source: own elaboration. Adapted from National statistical Bureau of China⁴

3.1.4. Environmental problems caused by mass tourism

But there has emerged some serious environmental problems in Hainan as well due to the development of tourism without reasonable plan and the awareness of environmental protection. As the island ecosystem and the rain forest system in Hainan are relatively fragile and vulnerable, the environmental pollution cannot be ignored. Tourism exploitation has made many coastal regions destroyed. In recent decades, the area of mangrove forest in Hainan has decreased by more than half; the area of coral reef and the length of the fringing reef have reduced by 56% and 59% respectively; even worse, the offshore pollution pressure has increased. The central mountainous area is the most important core area of the ecosystem of Hainan, but the ecological function is degraded due to the destruction of the forest for cultivation: more than 200 species are endangered and a few species are extinct , land degradation and so on (Hou, 2014), which threaten the sustainable development of tourism in Hainan.

3.2. Environmental policies for Hainan's tourism industry

3 <http://www.visithainan.gov.cn/>

4 <http://data.stats.gov.cn/search.htm?s=海南>

The tourism quality is linked with the environment quality since the environment is considered as tourism resources and is a part of the tourism product in island tourism. For developing a better and sustainable tourism industry, it's necessary to take actions to solve the environmental problems generated by unreasonable mass tourism development. Most of the environmental resources are public such as the beach, the air, the river etc. Since the market mechanism can't allocate the environmental resources well and plays a weak role in environmental protecting, there is a need to depend on the government. The government can launch environmental policies exclusive to tourism industry to regulate the exploitation of environmental resources and minimize the destruction to environment made by tourism producers and consumers. After a survey to Hainan's tourism industry, six environmental policies are presented in the following, which aim at different aspects.

3.2.1. New pricing system of tourism products

The mispricing of tourism products is a main factor resulting to the degradation of tourism environment and the over-exploitation of environmental resources. The existing pricing system of most tourism products ignores the environmental cost. When tourists consume the tourism products, their behaviors make a negative impact on environment more or less. For example, a tourist rent a yacht and go to sea for leisure. The emission because of burning fuel is harmful to air and sea, which renders environmental cost. The environmental cost should have considered into the total price which is equal to the value but the reality results in a lower price and the excluded environmental cost is undertaken by local residents who live in the influenced environment. Ignoring the environmental cost: on the one hand, it causes the over-consumption of tourism products and deteriorates the environment; on the other hand, no one is forced to take the responsibility to compensate the environmental cost. So it's necessary to introduce environmental cost to the price system and show the environmental value in the tourism product.

Adding environment cost to the product price system is a complex issue which needs a great deal of professional knowledge and field investigation. Common participators in tourism industry aren't capable to do it. In this case, the government is needed. The local government can organize an expert group and offer them fund to support the field research and design a new pricing system with related environmental cost. Once the expert group gets the result, the government can set a tourist area as an experimental plot. In the experimental plot, the tourism products are priced in the new-designing pricing system. The successive investigations are needed: the response of tourists (attitude, behavior), the influence on tourism business and environment etc. Through analyzing the feedback, the new pricing system are revised constantly. If the testing result in experimental plot is desired, the new pricing system can be generalized to other areas gradually. In doing so, the government needs provide

the participators with guidance and suggestion to help them achieve the transformation smoothly.

3.2.2. Property system of tourism environmental resources

Tourism resources are typical common-pool resources with the non-exclusive but competitive characteristics (Xiong, 2013). As other common-pool resources, tourism resources face the common problems: over-use and lack of investment and repair individually. Establishing and improving the property system of tourism environmental resources is a key point to solve the environmental problem. It aims to define “the owner” of the public tourism environmental resources like beach, sea, forest etc. The owner has the right to use and the responsibility to protect. According to the characteristics of tourism environmental resources, the government can stipulate the ownership, the possession, the use right and the disposal right. For the resources like water, clean air etc., it’s difficult to define the ownership so the focus should be on the possession and the use right. For example, there are many resorts built near the beach in Hainan and these resorts exhaust amounts of waste everyday. Among them, the government can allocate the emission rights to the demanders (the resorts in this case) by paying, realizing the market transactions in the end.

Property transaction is a complicated process and needs regulation and law to guide the transaction and protect the equity. So far, there haven’t been a complete law about tourist environment resources in Hainan. So the government should legislate to regulate the exploitation of tourist environment resources and the transaction of its property.

3.2.3. Green accounting in tourism economy

The traditional tourism economic accounting only focus on assessing the growth of the economic benefit while ignores the environmental loss during the tourism activities, which normally causes a false or exaggerated growth phenomenon as the economic figure showed in the second part. In order to meet the strategy of sustainable development in tourism and show the realistic growth, the element of environment should be integrated into the tourism economic accounting system and establish the GNNP (Green Net National Product) system which considers the environmental loss as a negative national economic indicators and reflects the true tourism industry income. Until now, Hainan even in China hasn’t adopted this accounting system although this concept has been raised many years. It’s time to implement it. As it’s a national indicator similar with GDP, GNP, the government of Hainan can cooperate with central government. On the one hand, Hainan can be taken as a demonstration area to carry out the GNNP system and accumulate the practical experience that can be referred by other areas in the future; on the other, with the support of the central government, the attention paid by different sectors will be increased, which is good for the implementation. At the same time, the support of fund, technology, experts from central government will be more superior.

3.2.4. Environmental interpretation for tourists

Ling (2002) thinks the most soft visitor management strategy is providing information and environmental interpretation for tourists. Environmental interpretation in tourism is a service process mixing education, information delivery and management. In the process, commentators intrigue tourists in diversified communicating ways and help them realize the culture and characters of the tourist site and cultivate the ability of appreciation, which further make them develop the right value view for the environmental resources and protection. Environmental interpretation can not only improve the environmental literacy of public and the quality of the tourism, but also make public deepen the realization for the value of the natural and cultural tourist resources, which fostering them to participate in protecting environment more positively.

Environmental interpretation firstly appeared in the service system in the national parks in American. Now it's a widely-used way in which the developed countries implement the environmental education in eco-tourism sites. Since China haven't established environmental interpretation system universally, Hainan can be the first tourist area to experiment, which possess the fragile forest resources and cultural sites as mentioned before. The environmental interpretation process is a communication process between information transmitter, information and information receiver through the media (Tilden, 1997). Therefore, the validity of the environmental interpretation depends on four aspects: the accuracy of information, the ability of information transmitter, the carrying capacity of media and the information receiver. Given this, for the environmental interpretation of tourism in Hainan, it needs to strengthen the accuracy of information, train the commentators and improve the quality of transmission media. The commentators are the most part as they service the tourists directly. They should get the professional training courses. Only passing the assessment and getting the qualification can they do the practical work. Also interpretation way needs to be innovated and make tourists keep the interest all the time. For the uncertainty of the information quality tourists receive, tourists should be distinguished, especially focusing on the tourists who are absent-minded.

3.2.5. Tourism environmental tax

The environmental tax is a general term of various taxes that can protect the environment and ecosystem. It can produce double dividend effect (Ma , 2007), that is, on the one hand, the taxation on tourism can force tourist practitioners to reduce the pollution and improve the environment quality; on the other, government can collect more fund to implement environmentally-protecting programs. Alavalapati and Adamowicz (2000) made a quantitative study between tourism environmental and tax, believing that tourism environmental tax increased by 1% meanwhile the environmental damage reduced by 0.0088%. Environmental tax does play a role in environmental protection.

Palmer and Riera (2003) put forward the ecological tax in Balearic Islands, which is worthy learning for tourism development in Hainan. The government should set different tax rates for different tourist products. For example, the government can set a flexible tax rate according the quantity of emission for the hospitality industry. Higher quantity of waste the hotel emits, higher tax it should pay. This type of tax can encourage the tourist producers to reduce the negative impact on environment caused by their activities by themselves. Take the hotel as an example. For reducing the environmental tax, the hotel must try its best to reduce the emission of wasted water. So the hotel needs to adapt some policies to improve the water utilization rate, like recycling the wasted water, introducing the new technology to dispose the wasted water, reminding guests to save the water etc. It can achieve the environmental protection and save water resources at the same time.

3.2.6. User fee

User fee is the cost paid for the use of resource, facility and service. The user fee of tourism in Hainan includes six aspects: food, housing, transportation, travel, shopping and entertainment (Hou, 2014). The tourism consumption per tourist in every destination has its own characteristics and there is difference between day trip and overnight as well. The attractions in Hainan mainly use price leverage to encourage or inhibit the behaviors of tourists. At present, the price of entrance ticket of the most attractions in Hainan is same no matter in high season or low season, which goes against to control the number of tourists and manage the attraction. Taking into account the energy consumption of public transport, the government can choose the following price incentive strategies: reduce the ticket price and other tourist facilities use fee; offer the tourists who take the public transportation for traveling a preferential ticket price. On the contrary, there are some price suppression strategies available including: fine the tourists who litter or have other misconduct; higher price tickets in high season; charge high parking fee for the self-driving tourists etc.

4. Conclusion

As this paper focuses on the environmental problems caused by mass tourism in islands, the typical environmental problems are summarized in the second part. The impact on soil and vegetation: mass tourism demands a large number of lands for constructing tourist facilities, so large areas of forests are cut down, which reduces the vegetation. Also, the influence of trampling is significant. It can cause soil erosion and vegetation loss at the same time. The impact on biological species: the mass tourism reduces the biodiversity because of the related pollution and over-consumption. The impact on water resources: the mass tourism demands large quantity of water resources. For meeting the demand, over-exploited of underwater happens. In the meanwhile, some tourism activities pollute the rare water resources, which makes the situation worse. The impact on air: as the population of low cost airline and self-driving, the transportation in tourism activities have a larger negative influence on air quality since they emit a lot of harmful gases and greenhouse gases.

The role of government is emphasized in solving the environmental problem in tourism. For China, the mass tourism is booming with the development of economy and its huge population. In the meanwhile, the environmental problems caused by mass tourism are severe especially in these islands as the holiday destination. So this paper takes Hainan island as a case to analyze what environmental policies the government can launch to solve the tourism-related environmental problem. First, the existing pricing system of tourism product need introducing the environmental cost to show the environmental value. Second, the government should facilitate the construction of the property of the tourism environmental resources and make the related law. Third, the government need to adopt the new accounting system in tourism economy: green net national product, which considers the environmental loss as a negative indicator and shows the realistic economic growth. Fourth, the government should attach importance to the environmental interpretation. Fifth, tourism environmental tax is necessary in environmental protection. The government should set different tax rates for different tourist products. Sixth, the government can utilize the user fee as a leverage tool to influence the behavior of tourists.

All the environmental policies are suitable for other tourist areas after adaption. But this paper only comes up with the general concept of the environmental policies. Every environmental policy involves a complicated system. For practicing it, there is still a long way to go.

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