Low Carbon Policy and Sustainable Development of Environment of the Indigenous Ceremonial Holiday in Taitung County, Taiwan

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Abstract. Low-carbon tourism is an emerging topic that the tourism industry and academia have paid attention to in recent years. In the past, many researchers have designed low-carbon tourism package itinerary from the point of view of practitioners, and rarely used the view of policy operation to guide self-service tourists how to engage in energy-saving and carbon reduction behaviour in tourism. The purpose of this study is to analyse the government departments in Taitung County, Taiwan as a case study on how to guide and promote the activities of participants in energy conservation and carbon reduction during ceremonial holiday. This study draws preliminary conclusions that the key to the success of low-carbon tourism lies in the specific implementation of government policies. In addition, the key to success is that people can abide by the law and government policies. There is also communication with indigenous tribes about low-carbon practices, and the use of mass media and school to promote this policy.

1. Introduction
In the world economic forum in 2009, participants pointed out that tourism industry is one of the largest industries in the world. However, according to the research, the carbon dioxide emitted by tourism industry and tourists’ activities accounts for about 5% to 14% of the global total [1]. Therefore, the concept of low-carbon tourism is proposed, hoping to slow down the trend of carbon emission increase. Low carbon tourism is a new way of travel, which is conducive to the sustainable development of environment, economy and society. It will become more important in the future [2]. According to the study, in the process of tourism, tourists use transport (aircraft, cars, boats, etc.), accommodation facilities, as well as tourism activities, resulting in the most obvious energy consumption and carbon emissions [3]. Therefore, how to promote people to engage in low-carbon tourism has become a topic of concern in the industry and academia in recent years. In terms of promoting low-carbon tourism, the most common way is for tourists to take means of transportation, for example, they can choose to walk, bike [4] and take public transport (such as MRT, train or passenger transport) [3], choose hotels with environmental protection certification [5], when staying in hotels for more than one day, it is recommended to reuse towels and bed sheets [6], and it is also recommended that passengers take personal toiletries and save water used [3]. At the same time, the industry and academia also found that the carbon emission caused by diet cannot be ignored [7], and it is suggested that tourists can carry reusable tableware and shopping bags [8], and choose local and...
seasonal food [3]. The ceremonial holiday is a very important activity for the indigenous peoples in Taiwan every year. Since the government of Taiwan promoted the tourism of the tribes, although a large number of tourists have brought positive economic and social impacts to the tribes, negative environmental impacts have also come along [9]. Therefore, the promotion of low-carbon diet has gradually attracted the attention of the government departments in Taiwan, but the experience and awareness of the Taiwanese people in this area are still insufficient. In 2016, Taitung County Government (TCG) began to promote the experience of intellectual, environmental friendly and low-carbon small-scale trip for the Indigenous Harvest Festival. It is hoped that tourists can reduce the impact on the environment during their travel and better understand the scenery and indigenous peoples’ cultural characteristics of Taitung. As it is the first case in Taiwan, the main purpose of this study is to analyse the process and effect of implementation, hoping to provide a reference for the indigenous tribes to handle the ceremonial holiday, and promote the low-carbon environmental protection policy.

2. An Analysis of the sacrificial rituals of the indigenous peoples in Taitung, Taiwan

According to the announcement of the Taiwan Council of Indigenous Peoples (TCIP), the population in 2019 is 571427. At present, there are 16 groups of indigenous peoples, including Amis, Atayal, Paiwan, Bunun, Puyuma, Rukai, Tsou, Saisiyat, Yamei, Thao, Kavalan, Truku, Sakizaya, Sediq, Hla'alua, Kanakanavu, etc., 16 ethnic groups, each groups have their own culture, language, customs and social structure. Taitung County has a population of about 220000, of which nearly 80000 are indigenous people. Taitung county has a population of about 220000, of which nearly 80000 are indigenous peoples, and about 148 ceremonial holiday are held regularly every year. According to the celebration activities announced by the Taitung county government and referring to the contents of the main ceremonial holiday announced by the TCIP, the researchers summarized the contents of the main ceremonial holiday of the indigenous peoples in Taitung as shown in Table 1 [10].

| Name  | Explanation                                                                 |
|-------|-----------------------------------------------------------------------------|
| Rukai | Millet Festival It mainly stems from a series of ritual activities organized by the residents of various tribes in order to thank God for the harvest of crops and pray for God to give peace. |
| Paiwan| Harvest Festival The harvest festival, called Masarut, is intended to thank the gods for their care and to serve as a boundary between the beginning and the end of an year. |
|      | Five-years Festival The five-year ritual activity is a symbol of the meeting between the tribe's people and the ancestors' souls or gods. Its holding is based on a tribe. Due to the difference in time, region, and man-made, sacrificial acts often differ. |
| Kavalan| Sea Festival Every spring from early spring to summer, the four tribes of the Kavalan tribe on the east coast will choose one to several days to hold Laligi on the beach near the tribe to worship the ancestral spirit and the gods in charge of the ocean. |
|      | Harvest Festival The main purpose is to pray for a good harvest of cereals, which is probably held after the cereal harvest and before sowing in winter, and it must be when there is no moon. |
| Tribe     | Festival                                      | Description                                                                                                                                 |
|-----------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Yamei     | Fish Festival                                | The significance lies in "calling for flying fish", praying for a good harvest.                                                             |
|           | Flying Fish Festival                          | Held in the flying fish flood season, the period can be roughly divided into three stages: the first is the stage related to the dispatch of the big ship, the second is the ceremony of the boat, and the last is the ceremony of ending the fishing festival. |
|           | Harvest Festival                              | In addition to thanking the gods for their gifts through singing and dancing performances, the tribes also express their friendship and mutual assistance by giving gifts to each other. |
| Puyuma    | United Harvest Festival                       | The United Harvest Festival is not a traditional festival. In the event, each tribe is used as a unit to participate in various party activities. |
|           | Sea Festival (Harvest Festival)               | The festival is to worship the two deities who brought millet seeds to the world in the direction of Lanyu on the beach.                   |
|           | Monkey Festival                               | The Monkey Festival is the training of the Puyuma tribes youth before they reach adulthood, and it is also an important mechanism for the socialization of the promotion of the Puyuma men to youth. |
|           | Remove the Funeral Ceremony                   | On the day of the Funeral Ceremony, a tribal man will accompany the chief priest to the funeral home to exorcise and pray for blessings.  |
| Ami       | Fishing Festival (Sea Festival, River Festival)| The Fishing Festival is a concrete manifestation of the Ami people's inspiration to the sea gods and the heaven and earth gods. Because they believe that nature is dominated by many gods, they respect the nature and hope to capture abundant fish and shrimp every year. |
|           | Harvest Festival                              | The Harvest Festival is a ceremony held by the Ami people to thank the gods after the millet harvest. Although this festival is named after a harvest, its contents include harvest, god confession, friendship, social and age-class promotion ceremonies, military training acceptance ceremonies, etc. It is a comprehensive activity with many characteristics of economy, religion, society, politics, and culture. |
| Bunun     | Ear Shooting Festival                         | This festival is the biggest annual hunting and martial arts festival of the Bunun, which also includes the adult ceremony of tribal youth. It is also a way to training the combat ability of hunting, establish the value of individual life, and obtain social recognition. It is a required course for adult etiquette. |

From the analysis results in Table 1, it can be understood that the indigenous peoples who hold ceremonial holiday in Taitung County each year. Since about 148 celebrations are held, in addition to most of the indigenous peoples who work in other counties and cities will return to participate in the activities, they also attract a large number of tourists. Since Taitung is the main area for tourism development in Taiwan, there are no industrialized facilities. In addition to the ceremonial holiday
mentioned above, the county also has mountains, longitudinal valleys, streams, oceans, and islands. According to the statistics of the Taitung County Government, in 2019, the number of tourists in the main tourist attractions in the county total more than 8 million. Due to the large number of tourists visiting, it also brings environmental impact to the county. Therefore, promoting energy saving and carbon saving has become one of the important governance measures of the county's governors.

3. Policy promotion and publicity

In order to achieve the goal of low-carbon city, Taitung county government has actively implemented various action plans of low-carbon, energy conservation and carbon reduction over the years. For example, the construction of artificial wetland water purification measures, green building promotion, LED street lamp replacement, solar photovoltaic roof installation, electric vehicle subsidy, low-carbon tourism promotion, resource recovery and promotion of food waste enzymes, various water saving, electricity saving, oil saving declaration Guide etc. Through this event, the TCG not only promotes the county 's low-carbon policy, but also lets the people understand the way and importance of low-carbon life, and can better understand the depletion of environmental energy resources and waste reduction.

3.1. Policy Advocacy

The TCG first promotes air pollution among civil servants and employees, such as eating more fruits and vegetables, eating less meat, going to bed early and reducing carbon dioxide emissions, so as to save the planet and maintain the environmental quality of Taitung. Next, make a short video on the production of low-carbon life and air pollution prevention effects, including "Low-Carbon Sustainable Homes", "Energy Saving and Carbon Reduction" topics, and "Effective implementation of Various Air Pollution Prevention and Control Measures". The title of the film is: "Low Carbon Sustainable life integrates with you and me, " Energy Saving and Carbon Reduction Line-Taitung New Rider ", "Greener Air is Cleaner", "Beinan River Dust Prevention Effect", "Squid Car Report" and "Gas Station Fuel Gun Jump-Stop" and so on.

3.2. Promotion to tourists

As mentioned above, Taitung County is a tourist area. After the first stage has formed a residents understanding of the importance of low-carbon environmental protection in the county, the second stage is aimed at tourists from outside. First of all, at the various stations, ports, airports, travel agencies, restaurants, and tourist attractions in the county, the LED wall is used to promote the county government's policies to promote low-carbon tourism. Secondly, in the travel leaflet issued to tourists and various travel websites, it briefly mentioned how to achieve carbon reduction tourism.

3.3. Promote low-carbon tourism in folk events

The TCG reviews the process of folk activities in the county and draws up a carbon reduction plan based on the activity process, which includes: (1) Instead of using one-time products during the diet, use environmentally friendly stainless steel bowls and chopsticks; (2) Change the habit of using bottled water in large amounts in the past. The sponsor provides cups and insulated barrels to supply a variety of beverages; (3) Eat locally seasonal food and drink; implement garbage classification and food waste recycling. So indigenous tribe ceremonial holiday low-carbon practices, as shown in Figure 1.

3.4. Benefits of carbon reduction

According to the field test results of each activity by the environmental protection unit, it is found that the number of participants in each activity is about 4140 peoples. After estimation, the benefit of carbon reduction is shown in Table 2.
Table 2. Benefits of carbon reduction

| Carbon reduction measures | Reduction project | Numbers (person-times) | KgCO₂e | KgCO₂e |
|---------------------------|-------------------|------------------------|--------|--------|
| Use environmentally friendly bowls and chopsticks | Reduce daily use of 1 set of disposable dishes and chopsticks per person | 4140 | 0.11 | 455.4 |
| Use a tea bucket to hold tea | Reduce 1 bottle of water per person per day | 4140 | 0.14 | 579.6 |

Note: 1. The quantity depends on the number of meals and the number of meals per event.
2. Refer to the data in the "Carbon Footprint Calculator of the Environmental Protection Department's Environmental Protection Low Carbon Activity Platform".

Figure 1. Indigenous tribe ceremonial holiday low-carbon practices.
4. Conclusion and Suggestion

4.1. Conclusion
It is not easy to promote the low-carbon way of celebrations, because people are required to change their existing living habits. According to field observations in this study and official data from the TCG, folk carbon reduction activities have achieved results. Therefore, low-carbon policies can be incorporated into regular activities held regularly, and planning low-carbon folk activities with substantial carbon reduction benefits can significantly improve the carbon reduction benefits. The preliminary conclusion of this study is to promote low-carbon folklore policies. First, the government should formulate policies, and the government is responsible for folklore and environmental protection departments, and consults with local tribes that handle festivals to start piloting low-carbon celebrations. After the success of the trial, it was then extended to various tribes and tourists participating in the event. In this process, the government department should continuously communicate with the tribe, and constantly solve the problems that arise, so that this policy can develop continuously.

4.2. Suggestion

4.2.1. For tourists participating in the celebrations, and indigenous peoples working on the outside city. When returning home or going to participate in activities, try to take public transportation (such as taking a bus or cycling) to reduce the amount of carbon dioxide. If tourists want to drive to the event site on their own, they should also try to take a higher load, reduce the number of vehicles, and reduce carbon dioxide emissions.

4.2.2. The higher the food mileage value, the greater the distance between the food and the production area and the food table. The more energy and gasoline consumed, the more carbon dioxide is emitted and the greater the negative impact on the environment. Therefore, tourists participating in celebrations, eating more vegetables, carrying reusable tableware, choosing local and seasonal food or organic food can also reduce the carbon dioxide emissions of catering activities.

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