

EDUCATION OF TOURISM ETHICS CODE DEVELOPMENT AS SUSTAINABLE TOURISM ZERO EMISSIONS (CASE STUDY: GUNUNG MENYAN, BOGOR)

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ABSTRACT

Bogor Fruit Garden (BFG) has an area of 3.30 ha, which is a combination of flower, fruit and phytopharmaca gardens. The purpose of implementing the Global Code of Ethics for Tourism (GCET) is to achieve sustainable tourism development and to shape the behavior of tourism people in a more responsible direction. The first problem faced by Partners is the lack of knowledge and skills in making the GCET. The second problem faced by Partners is the lack of knowledge and skills in selecting flora species for BFG collections, and how to calculate carbon dioxide absorption. The solution to addressing the first problem is by socializing the GCET. The solution to overcome the second problem is by socializing tree species and how to calculate carbon dioxide absorption from various tree species. Improvement and Knowledge of BFG Managers related to GCET is quite good (5.84%). While related to the type of tree and how to calculate the absorption of carbon dioxide by 7.10%. This is shown by the results of an analysis involving 7 BFG employees and managers, with pre and post-tests consisting of 14 GCET elements and tree species and how to calculate carbon dioxide absorption.

Keywords: Behavior-Tourism; Carbon Dioxide Absorption; GCET; Sustainable-Tourism

1. INTRODUCTION

Bogor Fruit Garden (BFG) Gunung Menyan is a fun natural and educational park with an outing class concept, has an area of 3.30 ha planted with horticultural crops, which is a combination of flower, fruit and phytopharmaca gardens. This BFG is in the same area as the Modern Islamic Boarding School, so this destination is also an education for the students. BFG's accessibility is Jalan Raya Leuwiliang - Bogor, about 12 kilometers, then pass Ikan Tawar Jembar Mas, and turn left onto Jalan Captain Dasuki Bakri.

According MDD Maharani, Marlinda Irwanti, Nurwiyoto (2022), tourists who come can enjoy nature-based tours and education that are environmentally friendly. BFG destinations are presented for students, teachers and the general public as well as learning various things, including gardening ornamental plants, medicinal plants, herbs and cosmetic ingredients. Apart from that, visitors can also visit the mini zoo at BFG, relax in a cafe while enjoying a collection of flora and fauna.

To improve education for tourists, the majority of whom are santri, students and teachers, Partners (Operational Manager of BFG) are often faced with questions about whether tourism can continue to provide better opportunities for the people of Pamijahan Village, Bogor Regency.

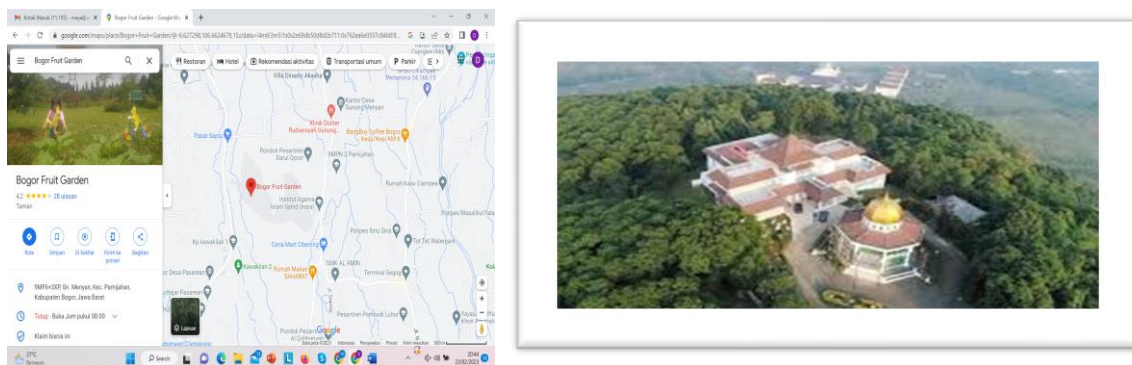


Figure 1. Location of Tourism Code of Ethics Education activities at BFG

Tourism opportunities as a true driver of solidarity and development can still be felt today. Tourism takes full advantage of its power to bring people and communities together, and complies with the Global Code of Ethics for Tourism (GCET). In this way tourism can continue to provide better opportunities for Sustainable Development.

GCET is addressed to tourism managers, governments, the travel industry, communities and travelers, to help maximize the benefits of tourism while minimizing its potential negative impact on the environment, cultural heritage and communities around the world. One concrete step to minimize the potential negative impact on the environment in accordance with the BFG location is to plant tree species that can absorb carbon dioxide.

Tourism opportunities as a true driver of solidarity and development can still be felt today. Tourism takes full advantage of its power to bring people and communities together, and complies with the GCET (Mercedes, R.L. *et al.*, 2018, Cardoso, A., 2022, Mercedes, R.L., 2022, Castilho, F., *et al.*, 2022, Camilleri, M.A., 2015). In this way tourism can continue to provide better opportunities and Sustainable Development for millions of people around the world. The World Tourism Code of Ethics, known as the GCET, has been regulated by the World Tourism Organization (WTO) since 1999. The GCET is the basic principle used as a reference for tourism development which includes economic, social, cultural and environmental components.

GCET is aimed at tourism managers, governments, the travel industry, communities and tourists. GCET aims to help maximize the benefits of tourism while minimizing its potential negative impact on the environment, cultural heritage and communities around the world. One concrete step to minimize the potential negative impact on the environment is to plant tree species that can absorb carbon dioxide in the BFG Area.

PARTNER SITUATION ANALYSIS

Since it was inaugurated on July 8 2022, BFG Management has served many visitors from the surrounding community, the majority of which consist of students and teachers as well as children and families. Visitors can carry out various activities at BFG, mainly seeing and studying the three main zones, namely flower plants, fruit in pots (tabulampot), and herbal gardens (pharmacy) which are spread over an area of three hectares. Apart from that, visitors can also meet and interact with various animals, such as kate chickens, guinea fowl, fan pigeons, rabbits, and various reptiles at the mini zoo which is an attraction and amenities.

Apart from these attractions, future activities are to offer visitors, especially children, the opportunity to take part in flower arranging, cooking and gardening classes. Children visitors can learn directly from nature, while their parents can have a culinary tour at Le Gimutis Café, while looking at the mountain views that can spoil their eyes. Visitors who want to travel to BFG can order tickets online through the official social media page. The entry ticket is IDR 15,000 per person, with opening hours every day, 09.00 - 16.00 WIB. The location of this family park is quite far from the hustle and bustle of the city.

PROBLEM

Learning from benchmarking and observation in several tourist destinations, the character of tourists has the freedom to go anywhere without being restricted (freedom of traveling). A tourist is protected by the liberty of movement in which there is a code of ethics. However, not all tourist habits can be carried out in any tourist spot, especially if in a tourist destination there are certain prohibitions which if violated will cause conflict with local communities, for example in Bali, Baduy and Tanah Toraja. This problem finally came to the attention of the World Tourism Organization (WTO). In 1999, the WTO General Assembly adopted the GCET as the basic framework for responsible and sustainable tourism. GCET is a basic principle that is used as a reference for tourism development which includes economic, social, cultural and environmental components related to travel and tourism.

Two years later GCET was recognized by the United Nations (UN). Furthermore, the United Nations encouraged the United Nations World Tourism Organization (UNWTO) to socialize it by forming a committee, namely the World Committee on Tourism Ethics (WCTE) which has the duty and responsibility of interpreting, implementing and evaluating GCET. UNWTO has GCET so that the behavior of tourists is locked with a code of ethics issued by UNWTO (David, A. F., 2018)

The tourist code of ethics is one of the key factors in preserving the environment. The code of ethics made for visitors serves to influence and direct the behavior of visitors, the contents of the code of ethics usually relate to things that are prohibited and something that is recommended for the safety of visitors and the tourist attraction itself.

The implementation of the tourist code of ethics has been carried out by the manager of the ecotourism area, both written and unwritten. First, the written code of ethics implemented by the manager contains appeals that tourists must pay attention to when traveling, including: (i) Please do not take anything that is in this area; (ii) Please do not do graffiti and carvings on the stones in this area; (iii) Please do not throw garbage in this area. In addition to the written code of ethics above, there is also an appeal regarding fines imposed on visitors when they commit violations. Fines in the form of nominal money for tourists who violate this can also affect the behavior of tourists when visiting. The fine imposed by the manager is Rp. 1,000,000 – Rp. 5,000,000,-.

Partners' lack of knowledge, skills and attitudes in understanding and implementing GCET raises several problems. Some of the problems that need to be addressed, are:

The first problem faced by Partners is the lack of knowledge and skills in making the GCET. The second problem faced by Partners is the lack of knowledge and skills in selecting flora species for BFG collections, and how to calculate carbon dioxide absorption.

2. METHOD

Tourism is not only for today, but also for the future so that fundamentally we must protect the development of sustainable tourism development together. Sustainable tourism is the development of a travel concept that can have a long-term impact. Both for the environment, social, culture, and economy for the present and the future for all local people and visiting tourists. In an effort to develop sustainable tourism, the Ministry of Tourism and Creative Economy has developed four focus pillars, namely: (i) sustainable management (tourism business), (ii) long-term sustainable economy (socio-economy), (iii) sustainable culture must always be developed and maintained, as well as (iv) environmental aspects (environment sustainability) (Camilleri, M, 2015, WTO, 2014, Camilleri, M, 2012, Mervat and Marwa, 2023).

The solution to addressing the first problem is by socializing the GCET. In principle, the purpose of implementing the tourism code of ethics is to achieve sustainable tourism development and to shape the behavior of tourism people in a more responsible direction. The solution to overcome the second problem is by socializing tree species and how to calculate carbon dioxide absorption from various tree species.



Figure 2. Several Attractions at BFG

This activity uses the method of discussion and mentoring. The mechanism for implementing activities includes:

1. Discussion of the Service Team with Partners.

The discussion of the Service Team and Partners is carried out by the Chair and Members so that the objectives can be understood optimally. Possible obstacles and risks that might occur were discussed from the start, so that it was hoped that the implementation would run smoothly, and be of benefit to Partners, agricultural stakeholders, and the surrounding community.

2. Pre Test Concrete Steps for Tourism Development to be implemented

Questions will include the impact of the large number of tourist visits that can have a negative impact on the environment, this is caused by the different habits or behavior of tourists. Guidance on behavior that remains important to be formed by BFG area managers is the basis for consideration of sustainable tourism development.

3. Dissemination of the Tourism Code of Ethics as a Factor of Sustainable Development.

Dissemination of the Tourism Code of Ethics as a Factor of Sustainable Development, begins with the GCET document which covering the economic, social, cultural and environmental fields, namely: (i) Tourism's contribution to mutual understanding and mutual respect between communities and tourists; (ii) Tourism as a means for individual and collective fulfillment; (iii) Tourism is a factor of sustainable development; (iv) Tourism is the cultural heritage of mankind and contributes to its enhancement; (v) Tourism is an activity that benefits the host country and its people; (vi) Stakeholder obligations in tourism development; (vii) The

right to tourism; (viii) Freedom of movement of tourists; (ix) The rights of workers and employers in the tourism industry; and (x) Application of the principles of the Global Code of Conduct for Tourism

4. Socialization of species selection and calculating carbon dioxide absorption

Socialization of Type Selection and Calculation of Carbon dioxide absorption begins with the City being the center of all human activity. Various activities in urban areas such as motorized vehicles, households, hotels, industry and other activities require propulsion and heating energy which is partly obtained from burning fossil fuels such as gasoline, diesel, kerosene and coal. The combustion process will produce CO₂ gas (carbon dioxide). The main danger of increasing its concentration in the air is the increase in global air temperature through the greenhouse effect (green house effect). One effort to minimize the increase in CO₂ concentrations in the atmosphere, especially in urban areas, is by planting forestry plants.

5. Post Test Concrete Steps for Tourism Development and calculating carbon dioxide absorption to be implemented

The post test questions are designed the same as the questions during the pre test, this is an evaluation of the success or failure of the Manager's understanding of GCET

3. RESULT AND DISCUSSION

Improvement and Knowledge of BFG Managers related to the Global Code of Ethics for Tourism (GCET) is quite good. This is indicated by the results of the pre-test of 67.70%, while the post-test of 73.54%. There was an increase in knowledge of 5.84%.

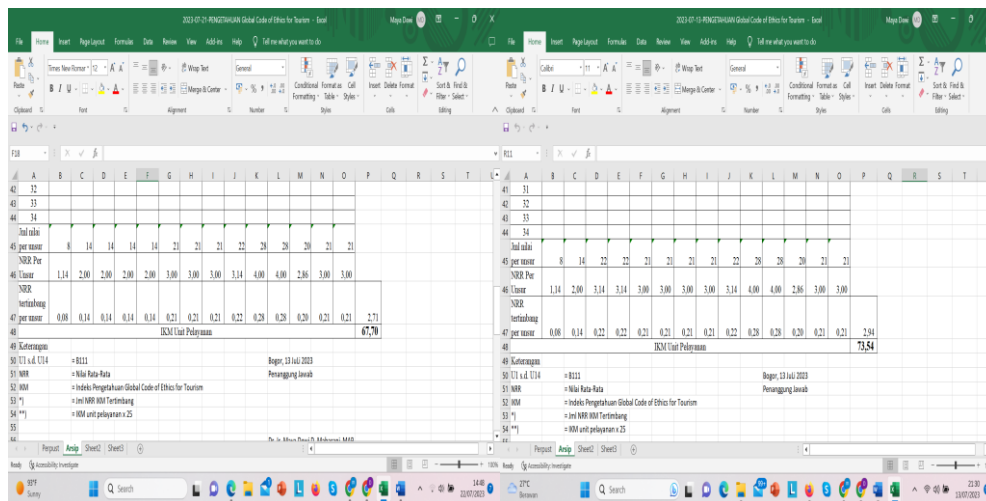


Figure 3. Results of the Knowledge Index Management of the BFG related with the Global Code of Ethics for Tourism (GCET)

Meanwhile, regarding tree species and how to calculate carbon dioxide absorption, the pre-test was 62.89% and the post-test was 69.99%. There was an increase of 7.10%. This is shown by the results of an analysis involving 7 BFG employees and managers, with a questionnaire consisting of 14 GCET elements and tree species and how to calculate carbon dioxide absorption. How to calculate carbon dioxide absorption requires extensive and deep knowledge, and requires skills in the laboratory (Mervat, A., and Marwa, D., 2023, Friday, O., Jianglong, Y., Hai, Y., Yangxian, L., & Arshad, H. 2021, Hanna, K., Helena, S. 2017, Amita, C. & Ashok, N. B. 2023, Indriyani, L., 2020)

The measuring tools used in calculating the absorption of CO₂ are ADC LCA-4 and millimeter block paper. LCA-4 is used to measure CO₂ absorption and millimeter blocks are used to measure the area of one leaf. The results of measurements using LCA-4 in the silvicultural laboratory were averaged and then a graph of the photosynthetic rate was formed. The graph shows the parameters of the photosynthetic rate equation for each type of plant. Furthermore, by considering the basic data about the estimated daily light intensity (Bogor area) into the equation, the average photosynthetic rate of plant species is obtained.

The photosynthetic rate of this plant is still in units of micro moles per square meter per second. This unit is then converted to kilograms per hectare per day. Micro moles are converted into kilograms by considering the relative molecular factor of CO₂. The unit per hectare is obtained by multiplying the area of one leaf, the number of leaves per tree and the number of trees per hectare of each type.. Seconds are converted to days by considering the average duration of irradiation in Bogor which is shown in Table 1.

Table 1. Relationship between Plant Types, CO₂ absorbed and plant spacing

Number	Plant type	The amount of CO ₂ absorbed (Kg/day)-Ha	Plant spacing
1	Tanjung	1.622 – 648.978	(5x5) meter
2	Mangoes	1.247 – 498.657	(5x5) meter
3	Sawo	0.648 – 259.405	(5x5) meter
4	Durian	0.648 – 259.405	(5x5) meter
5	Kenari	0.363 - 225.418	(5x5) meter
6	Jati	0.298 - 119.215	(5x5) meter

Source: (Hadinata, K., 2005).

At an ideal spacing, tanjung can only absorb 111.949 kg CO₂ per day, the same goes for mangoes, the absorption capacity drops to 194.476 kg CO₂ per day. Sawo durian, which is a plant with a dense crown area, has a decreased absorption capacity of 64.851 kg per day. Kenari which has a spacing of (14x14) meter is only able to absorb CO₂ of 28.741 kg per day, while teak which has a spacing of (12x12) meter is able to absorb CO₂ of 20.565 kg per day. Calculation with the ideal spacing is specifically intended for production forest planting.

The results of the BFG Management Knowledge Index related to tree species and how to calculate carbon dioxide absorption are lower than the Management Index of the Global Code of Ethics for Tourism (GCET).

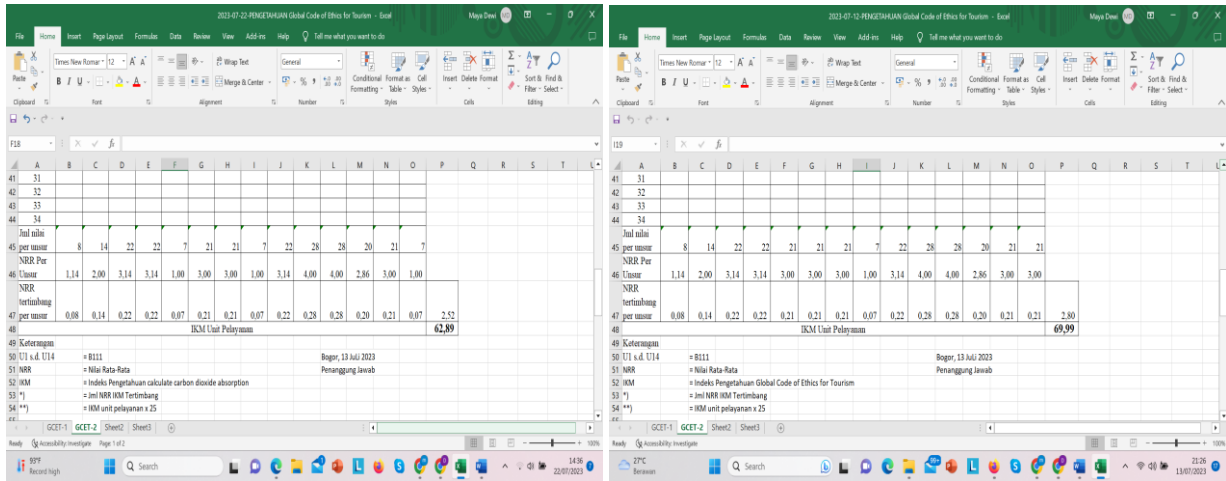


Figure 4. Results of the Knowledge Index Management of the BFG related to tree species and how to calculate carbon dioxide absorption

4. CONCLUSION

Improvement and Knowledge of BFG Managers related to the Global Code of Ethics for Tourism (GCET) is quite good. This is indicated by the results of the pre-test of 67.70%, while the post-test of 73.54%. There was an increase in knowledge of 5.84%. While related to tree species and how to calculate carbon dioxide absorption, there was an increase in knowledge of 7.10%. This is because the behavior of both tourism managers and visitors to preserve the environment is still limited to knowledge, not to concrete action.

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