**Forest Bathing: A New Attraction and Disaster Mitigation for Batur UNESCO Global Geopark Bali**

E J Mihardja\(^1\), D A P Sari\(^2\), I D K K Widana\(^3\), C Ridhani\(^3\) and I G W Suyasa\(^4\)

\(^{1}\)Communication Studies, Universitas Bakrie, Kuningan, Jakarta, 12940, Indonesia
\(^{2}\)Environmental Engineering, Universitas Bakrie, Kuningan, Jakarta, 12940, Indonesia
\(^{3}\)Disaster Management, Universitas Pertahanan, Bogor, West Java, 16810, Indonesia
\(^{4}\)Geopark Batur, Bali, Indonesia

Abstract. Forests have ecological and sociological functions, including tourism development as well as disaster mitigation efforts. In the conditions of the Covid-19 pandemic that hit Bali tourism, it is necessary to develop new types of tourism such as forest bathing. This research intends to study the potential and opportunities of bamboo forests in the Batur Geopark area to be used as new types of tourism, which at the same time can also be used as a disaster mitigation. A case study method with qualitative data collection includes observation, in-depth interviews, and literature study. A mapping plan for the bamboo forest area is also carried out to support the facilities and infrastructure for forest bathing activities. Bamboo has been used for the restoration of areas affected by the fire at Geopark Batur. However, no one has specifically offered the concept of Forest Bathing. Introducing forest bathing as a new attraction to revive Bali tourism and at the same time to preserve the environment is possible and necessary. Furthermore, there is important to develop destination branding and marketing for the forest bathing attraction.

1. Introduction

Forest Bathing is an idea that is carried out to apply the concept of forest therapy to achieve two benefits: psychological relaxation from life during a pandemic and stressful life in an urban environment and efforts to natural disasters. The use of bamboo trees is quite common for psychological relaxation, but forest therapy is an entirely new concept in Indonesia. In some areas, such as Solo and Brebes, bamboo trees are planted and engineered for reforestation on critical land to minimize runoff and landslides. This can also be adopted in Bali as the province is also at high risk of landslides.

The concept of forest therapy is planned to be implemented at Batur Geopark, located in Bangli Regency. This is based on a landslide vulnerability map which shows that this tourist area has a soil movement vulnerability zone with a medium to high classification. Given the critical role of Batur Geopark not only for the state but also for the regional and local economy, it is deemed necessary to make efforts to support the sustainability of post-pandemic tourism services and provide the sense of healing and safety from psychological pressures and future hazards risks.
Urbanization can threaten public health and environmental damage in urban areas [1][2]. Studies show that many urban communities are at risk of psychological and physiological stress. Apart from work pressure, this is also triggered by pollution and other pressures related to the environment [3]. Due to the negative environmental impact in urban areas, it is essential to study the benefits of the natural environment. In most humans, the relationship between survival and the natural environment is inseparable. Recent evidence shows that nature has great benefits for the human brain, including increasing happiness, health, and cognition [4]. In recent years, studies on the role of forests in health have received increasing attention [6]. Several theories about environmental health have been proposed, including attention restoration recovery theory and stress recovery theory which suggest that natural scenery can reduce stress, while non-natural environments tend to hinder recovery from stress. Similar studies confirm that the natural environment can enhance the relationship between a stressful life and psychological and physical health. [6–9]

Therefore, this research was proposed with two interests. First, filling the potential for the development of Bali Kembali. To fill Bali tourism which was hit by the pandemic. Second, contribute to disaster mitigation efforts. Preserving the forest is an effort to ensure the safety and welfare of the human inhabitants. Glorifying the forest will guarantee the quality of human life. Based on these interests, this research combines a socio-engineering approach to develop tourism and bio-engineering interests that can contribute to disaster mitigation efforts, especially against erosion and generally to overcome climate change.

Destination Branding is defined as a name, symbol, logo, wordmark, or another image that can identify and distinguish a destination; the rest promises a memorable tourist experience because of the uniqueness of a destination; which also functions in reinforcing memories, memorable memories of a destination experience [10].

Destination Branding is built from several factors, namely history, art, culture, politics, geography, with assistance from the government and stakeholders in sharpening a brand. The complexity of a Destination Brand is divided into four categories [11–13]; that is

1. Natural Condition. The natural condition factor includes elements that create the original uniqueness of a destination. This factor includes geographical areas, historical weather conditions, culture, customs, and interests referred to as essential natural condition factors.
2. Politics. Political factors relate to government regulations and other policies of different departments that affect tourism or destination brands.
3. Economy. Without investors, budgets from government and tourism departments, and investments, a brand’s goals will not be achieved. The value of a destination brand includes participation, investment and a combination of many parties, both from tangible (money), and intangible (reputation, trust, and image) income.
4. People. The community factor is important because the community is the one who makes the decisions, from planning that is potentially in focus and how much budget is needed in the brand-building process.

2. Method

Social engineering is carried out by packaging new forms of tourism by utilizing and conserving forests, namely forest bathing. The goal is for residents to benefit from this new tourist attraction by providing tour guide facilities and services. Regions also benefit from better branding. Above all, the universe benefits from the preservation of the forest and all that is in it.

Social engineering is done by exploring the potential and challenges in building the forest bathing attraction within the concept of destination marketing and branding. Therefore, data were collected using observation, in-depth interviews, and literature study. A Field study was conducted on 22-26 June 2021 in Kintamani and its surroundings in the Batur Geopark area. During the field study, site observations and in-depth interviews were conducted with forest bathing area managers, administrators of Kelompok Sadar Wisata (pokdawis) or tourism awareness groups, Geopark Batur managers, local government officials, academics, and site visitors. The pandemic situation at the time this field study was being
carried out deteriorated rapidly, so the team could no longer extend the visit schedule and had to return to Jakarta before the lock-down conditions were enforced. Therefore, the data is equipped with the results of literature studies and additional online interviews.

3. Results and discussion

The study focused on several things, including community empowerment, the preparation of guidelines for forest therapy guides, and planning the grand design of special interest forest bathing tours at Batur Geopark. Community empowerment in this study is interpreted as community empowerment activities aimed at equipping local communities to run the Batur Geopark forest bathing organization. Local communities who are members of the organization will be provided with skills and knowledge related to forest bathing, ranging from organizing tourist attractions to training guides. The people involved in the organization have local insights and are actively involved in youth community organizations. It is hoped that the skills and knowledge that have been obtained from the forest bathing training, including knowledge of the disaster profile in the local area, can be transferred to the broader community to support community development and resilience.

Information on landslide-prone areas is the primary data used to determine potential locations for forest bathing tourism. The information was obtained from mapping the landslide vulnerability zone mapped by the relevant government agencies (PVMBG of Bali Province). The location characteristics used to determine potential tourism locations are prioritized on existing bamboo forests and are in the landslide susceptibility zone of the Batur Geopark Area. Meanwhile, mapping the grand design of forest bathing tourism will utilize High Resolution Satellite Imagery (CSRT) for basic mapping of the area. CSRT is processed through a mapping application with a delineation technique and then processed by a micro-mapping application.

Guiding activities in special interest forest bathing tours will use the Way of the Guide method. This method will also be adopted for Batur Geopark forest bathing because it has many advantages. The curriculum in guide and guideline training focuses more on being a guide than being a therapist. This is because forest therapy is essentially an open-ended practice; there are no special procedures to carry out therapy or what benefits the practitioner must receive. In contrast, forest therapy is believed to be a common relationship-building practice in which the forest and the practitioner find ways to work together.

Since September 2012, Mount Batur Caldera has been designated a geopark area by the United Nations Educational and Cultural Organization (UNESCO). In the Batur Geopark area, at least 16 villages in Kintamani District, including Batur Tengah. These villages are located at an altitude of between 1,000 and 2,172 meters above sea level. Several locations in this area are the main tourist attractions, such as Mount Batur and Lake Batur, and temples and villages there. In this place, there is also the Batur Geopark Museum which displays information about Mount Batur.

Replanting bamboo in Central Batur can increase the amount of bamboo production in Bali. Until now, Bangli is the district that produces the most bamboo in Bali. As a center for bamboo production in the province of Bali, Bangli has a potential area of 6,119.72 hectares of bamboo stands with a product of about 2.3 million stems per year. The potential of the existing land reaches 7,500 hectares, and the product is up to 3 million stems per year. However, this potential cannot be adequately developed due to several challenges such as the lack of sufficient attention from the government, limited information about bamboo, and not many bamboo development products (mongabay).

Such an atmosphere is intended to be built with forest bathing activities and supported by stunning natural conditions. Mount Abang is the third highest peak in Bali, with 2,152 meters above sea level. The mountain is part of the Mount Batur caldera, which was created from a significant eruption. Mount Abang is located in Abangsongan Village, Kintamani District, Bangli Regency. Facing Mount Batur, this mountain is considered safe to climb because it is no longer active. As for climbing to the top, it only takes about three to four hours. Hindus often climb to Mount Abang to pray, especially during the full moon. Adventure on Mount Abang is the climbing postmarked by temple buildings. For Hindus
who climb, the temple at Gunung Abang is used as a resting location and to pray for protection from the Almighty for the journey to the top.

Currently, in Batur, there are already implementers of tourism activities such as forest bathing, known as the 'silent walk' on the slopes of Mount Abang. The package consists of trekking, walking through the forest, a yoga package located, and a meditation package at the temple. This yoga package is organized by a travel agency in Ubud that offers yoga packages with equipment and instructors. In local terms, this tour package is known as a Prana (breathing art) package.

A silent walk is usually carried out in the morning before sunrise, around five or six o'clock in the morning. Participants, guided by officers from Pokdarwis, walked along a paved road that was uphill with a slope that was not too extreme. Likewise, yoga is carried out with sunrise packages and widely offered on online pages, like in Klook or bagushalisunrise. Meditation packages are not offered to the public; According to Pak Nengah, our resource person, the meditation package is intended for spiritual and spiritual activities.

The initial idea of this research was to form a new Bamboo Forest Bathing tour. The location of the bamboo forest is Kayubihi. At the time of implementation in the field, the location was not yet accessible. Moreover, by the manager of Geopark Batur, we were directed to try the existing forest bathing packages.

The potential of bamboo forests in Bangli is mostly used as handicrafts that are sold to foreign countries. The development of the bamboo handicraft industry in Kayubihi Village, Bangli, has gone through a very long series of processes. In ancient times, bamboo artisans in Kayubihi Village used the product for household and religious purposes. For example, kuskusan (a household utensil used in cooking rice) and sokasi (a place to put offerings to be served). As the market develops and demand continues to increase, the production of bamboo handicrafts is also growing. Bamboo crafts made in Kayubihi Village can be found in various art markets and supermarkets throughout Bali and exported to foreign countries. This condition made the team reconsider the possibility of developing bamboo forest bathing tourism now, noting that it is necessary to do a comparative study first on the same type of tourism that already exists.

Near the Batur Geopark, there is a famous tourist village, Panglipuran. Penglipuran Traditional Village is located at the foot of Mount Batur at an altitude of 700 meters above sea level. This village is located on the Kintamani tourist route, 5 Km from downtown Bangli and 45 Km from downtown Denpasar. Much research has been done in this village because it is unique as a traditional village, cultural village, and tourist village, including the Bamboo Forest trekking. This trekking path by foot, bicycle, or two-wheeled vehicle divides the towering bamboo groves. The sound of rustling leaves in the shape of a lanceolate makes this a travel companion to enjoy various types of bamboo. On the information board at the main gate, it is written that there are 14 species in the bamboo forest area managed by this local traditional village. The trip will be more interesting if it is guided by researchers or residents who understand the bamboo life cycle and its benefits. For example, what parts are used as food ingredients, which types are processed into wickerwork or building materials. The shade of the forest became a new hangout. Some use the footpath for sports —morning or evening, especially weekends. Several tourists are also seen planning a pre-wedding photoshoot by observing the points that will look beautiful and dramatic, for example, at the point where the sun's rays fall, bursting from the grove of bamboo leaves. However, because the tourism industry is already very advanced in this area, the pioneering of bamboo forest bathing is not expected to run effectively.

Under these conditions, the initial idea for bamboo forest bathing was shifted to cover all types of forest bathing, including those managed by Pokdarwis Abang Erawang and fostered by Geopark Batur. The existence of a Geopark itself is an institution that can bring significant benefits to the region. On the GGN webpage, it is stated that:

Batur UNESCO Global Geopark is located in northeast Bali, the most popular international tourist destination in Indonesia. It covers an area of 370.5 km², at an altitude of 920-2152 m a.s.l., the outer-caldera wall surrounds the inner-caldera wall, Mt. Batur and the lake. Most of the Natural Tourist Park of Mt. Batur, dan Payang Hill is a protected forest area included in the UNESCO Global Geopark area.
Regarding the discussion of destination branding formed by various factors, it can be analyzed that the potential of Forest Bathing in the Batur Geopark area is very rich in natural conditions. A unique geological heritage area combined with cultural wealth is a significant capital to be formed as a destination branding for 'Geoforest Bathing.' This attraction is very suitable to be done in protected natural areas such as in geopark areas.

Political and economic factors in the region do require a more comprehensive search and discussion. However, it can be assumed, related to politics, the Batur Geopark managers will be greatly helped by this new attraction to improve the pillars of community welfare in line with the pillars of conservation and education. In turn, economically, residents will be helped to earn income while also preserving the natural environment in which they live. This attraction ensures the value of a destination brand includes participation, investment, and a combination of many parties, both from tangible (money) and intangible (reputation, trust, and image) income. The local community, especially Pokdarwis, is the next branding bearer. It is stated that ‘the community is the one who makes the decisions, from planning that is potentially in focus and how much budget is needed in the brand-building process. Thus, this also can maintain the sovereignty and identity of the community in its land.

The idea for the double summit route is Batur - Abang, with a distance of about 20-30 km, via the Songan Village or Toya Bungkah route. This could be a practice track to prepare for the next race. However, the Kintamani area has a complete attraction to become a venue for international trail race events. This area is attractive because some facilities are not available elsewhere. There is Trunyan Village, which is a tourist visit to Bali Aga village with typical funeral customs. There is a hot spring that is comfortable for soaking in the open air after the race while enjoying the natural atmosphere of Lake Batur. The famous culinary Mujair sambal Nyatnyat and the potential for trekking around the Batur Caldera.

4. Conclusion
Introducing forest bathing as a new attraction to revive Bali tourism and at the same time to preserve the environment is possible and necessary. Although currently there is a forest bathing program in the form of trekking up the mountain, the potential of the bamboo forest has not been explored. The forest bathing program has not yet been explored and requires introduction and management. Furthermore, there is essential to develop destination branding and marketing for the forest bathing attraction.

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References
[1] Lee I, Choi H, Bang K Kim, S Song, M Lee, B. 2017. Effects of forest therapy on depressive symptoms among adults: A systematic review. Inter. J. Environ. Res. Pub. Heal. 14 321.
[2] Zeng C, Lyu B, Deng S, Yu Y, Li N, Lin W, Li D, Chen Q .2020. Benefits of a three-bamboo forest therapy session on the physiological responses of university students. Inter. J. Environ. Res. Pub. Heal. 17 3238
[3] Frumkin H .2001, Beyond toxicity human health and the natural environment. Am. J. Prev. Med. 20 234–240.
[4] Williams F. 2016. This Is Your Brain on Nature. National. Geographic. 229.
[5] Lyu B, Zeng C, Deng S, Liu S, Jiang M, Li N, Wei L, Yu Y, Chen Q 2018 Bamboo forest therapy contributes to the regulation of psychological responses. Journal of Forest Research, 24 (1): 1-10.
[6] Hartig T, Evans G W, Jammer L D, Davis D S and Gärling T .2003. Tracking restoration in natural and urban field settings. J. Environ. Psychol. 23 109–123.
[7] Laumann K, Gärling T, Stormark K M. 2003. Selective attention and heart rate responses to natural and urban. J. Environ. Psychol. 23 125–134
[8] Morita E, Fukuda S, Nagano J, Hamajima N, Yamamoto H, Iwai Y, Nakashima T, Ohira H and Shirakawa T 2007 Psychological effects of forest environments on healthy adults: Shinrin-yoku (forest-air bathing, walking) as a possible method of stress reduction. Public Health 121 54–63

[9] Berg, AE Maas, J Verheij, R A Groenewegen, P.P 2010 Green space as a buffer between stressful life events and health. J. Soc. Sci. Med. 70 1203–1210.

[10] Li Q 2018 Forest Bathing: How Trees Can Help You Find Health and Happiness (PenguinBooks: London. 2018.

[11] Ritchie J R B and Ritchie J R R 1998 The branding of tourism destinations. In Annual Congress of the International Association of Scientific Experts in Tourism, Marrakech, Morocco 1-31

[12] Morgan N and Pritchard A. 2004. Meeting the destination branding challenge. Destination Branding 59-79.

[13] Moilanen, T., & Rainisto, S. 2009. City and destination branding. In How to brand nations, cities and destinations (pp. 77-146). Palgrave Macmillan, London.