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The challenges of forest bathing tourism in Indonesia: A case study in Sudaji Village, Bali

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Abstract. Forest bathing or *Shinrin-Yoku* in Japanese is known as a traditional practice of engaging oneself in nature by using all five senses. This practice provides some preventive health and healing functions, but more examples of good practice are still needed. Concerning the scientific evidence related to the effect of forest bathing in promoting health, this study aims to identify the potential of a traditional agricultural landscape in Sudaji Village as forest-bathing tourism. Landscape Characteristic Assessment was used to analyze the potentials and constraints of various landscape types and to propose a recommendation for bridging towards sustainable rural tourism. Findings show that Sudaji Village has a high potential to promote its forested landscape, agricultural land, and *Subak* as its socio-ecological system, river, mountain, as well as socio-cultural activities related to agriculture. Furthermore, the use of all human five senses is strongly related to *Panca Tan Matra*'s philosophical concept that is believed to be the way to communicate with God. This study promotes the potential of forest bathing as a prospective rural development strategy through tourism. In addition, strengthening the role of local communities is crucial to ensure that their natural and cultural resources of great potential be developed as tourist objects and attractions.

1. Introduction

The severe acute respiratory syndrome COVID-19 that was declared by WHO as the latest Public Health Emergency of International Concern on 30th January 2020 has forced people to stay at home to prevent the spread of this infectious disease. The ongoing pandemic is causing boredom, and people are looking for outdoor spaces that are well perceived as an alternative solution to respond to the need for more comfortable and healthier activities. Nowadays, the need for outdoor spaces continues to increase along with a relative increase in essential activities such as physical exercise, relaxing, and observing nature [1, 2] and also, increasing awareness of the ecological function of vegetation, especially urban trees as oxygen providers, carbon dioxide absorbers, climate amelioration, water, and soil conservation, and air purifiers [3, 4, 5]. Another fact shows that traveling to rural areas is more promising [6] due to natural conditions that accommodate what is needed by the urban community. This is a great opportunity to develop rural areas with a nature-based tourism approach [7, 8].



The utilization of natural resources as tourist objects and attractions has become a concern for tourism actors who offer pleasure and are now more directed to become a space that ensures health and welfare for tourists. One approach to developing the concept that has been recognized for its success is forest bathing (*Shinrin-Yoku*) or other terms such as forest therapy and forest healing with an underlying definition. In this study, we use the term forest bathing as first used to indicate the activity of enjoying the forest to be a space for meditation, tranquillity, and disease prevention.

Forest bathing is known as *Shinrin-Yoku* by the Japanese, supporting healing and wellness through a traditional practice of engaging oneself in forest and other natural environments. In Japan, *Shinrin-Yoku*, being defined as ‘taking in the forest atmosphere or forest bathing’, is currently getting increasing attention for its capacity to accommodate relaxation and reduce stress [9]. Li [10] also introduces *Shinrin-Yoku* and identifies natural deficit disorders in society with negative feelings towards life. Empirically, forest bathing practice is more on how humans gain firsthand experience in the open. In totality, humans focus their bodies and minds on their natural surroundings because forest bathing can be a therapy method for healing and wellness by connecting five senses, namely sight, hearing, taste, smell, and touch, in bridging humans and the forests [10, 11, 12, 8].

Concerning the important role and benefits of forest bathing tourism, this concept can be adopted and implemented in other areas [13]. As a country with the third-largest tropical rainforest in the world, Indonesia has the potential that can be utilized for doing forest healing or forest bathing. However, not all of the forests have good spots for serving as forest bathing destinations. Forest bathing serves not only the environment but also the healing activities guided by the community. A recent study shows that health-based tourism activities such as forest bathing or forest healing are mainly carried out by private parties who use artificial forest landscapes as tourist objects and attractions [14]. This is unfortunate considering Indonesia's unique and diverse nature and culture that can potentially be used as a tourist destination. In this regard, the current study aims to identify the challenges of forest bathing tourism development in Indonesia and propose an alternative nature-based tourism model that complies with the health issues through a study case in Sudaji Village.

2. Methods

2.1. Study site

The study was conducted from July to December 2020 in the administrative area of Sudaji Village, District Sawan, Buleleng Regency, Bali Province, with an area of about 8.17 km² which is divided into 12 official *banjars* (-8.187401 - -8.124614 and 115.184798 – 115.151667). Sudaji Village is located at an altitude of 500 meters above sea level. With a relatively gentle to a steep slope of the land (2 – 15%). The climate condition of Sudaji Village is relatively calm, with an average temperature of 26.3 °C, 85% humidity, rainfall 2,867.4 mm/year, and the intensity of sunlight by 62%. The geological structure of Sudaji Village is dominated by the alluvial layer, which plays a vital role in supporting the community's agricultural activities. Sudaji Village shows how the four streams pass river or *tukad*, namely *Tukad Penarukan*, *Tukad Sangit*, *Tukad Tamah Sebi*, and *Tukad Kusia*, with 18 different *subaks* provide added value for agricultural development as well as tourism. Sudaji Village is at risk of landslides, droughts, forest fires, earthquakes, and extreme weather with high-risk medium to high. As for the aspect of the land-use, Sudaji Village is dominated by rice fields area of 321 ha (39.3%) and plantation area of 226 ha (27.7%) and used for settlements yard, and other uses.

2.2. Data collection and analysis

This study relied on the Visioning Tourism Masterplan of Sudaji Village, which was formulated in 2019. One of the proposed implementation strategies is to realize nature-based tourism, which can refer to applying the concept of forest bathing (*Shinrin-Yoku*). A field survey and literature review [13, 8] were carried out in this study. A field survey was implemented through Landscape Characteristic Assessment (LCA) method, which data collection and preliminary analysis based on Participatory Rural Appraisal (PRA) approach [15]. LCA has been recognized as a reliable method to describe the reality and provide

basic landscape information critical in planning, designing, and managing the landscape. This method concerns five principles [16]: (1) landscape is everywhere, and every landscape has characters; (2) landscape occurs at all scales, and LCA can be undertaken at any scale; (3) landscape is inherited and LCA should involve an understanding of how the landscape is perceived and experienced by people; (4) landscape has primary information, and LCA can provide a landscape evidence-based to inform a range of decisions and applications; (5) landscape is a complex system, and LCA can provide an integrating spatial framework – a multitude of variables come together to give us our distinctive landscapes.

Concerning those principles, PRA was conducted to figure out the local characteristics of the landscape in nature and cultural properties. This method was used to explore local people's unexpected analytical abilities and express the locality through sequences of participatory visual methods (mental mapping). The literature review was carried out by discussing theories related to nature-based tourism that can be used as a reference in evaluating and formulating the development strategies of forest bathing tourism in Indonesia.

3. Results and discussion

3.1. Literature review

Through a literature review, we discuss several types of tourism closely related to community-based forest bathing tourism activities. Firstly, *nature-based tourism* that utilizes natural resources is one of the primary resources of tourism [17, 18]. Nature-based tourism appears to be chosen by more and more people because of personal pressure, the negativities at work life, a routine lifestyle, psychological pursuits, the psychosocial pressure, and living their lives in a big metropolis away from nature [18]. Nature-based tourism that also known as ecotourism [7], can be defined as tourism that consists of traveling to relatively calm or pristine natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestation found in these areas [19]. Meti [7] shows the position of nature-based tourism between ecotourism and using the natural area for tourism.

Secondly, *health tourism* is one of the global health care commercialization [14]. The increase of people's interest in travel affects the increase and change in tourism demands. Because of that, several other alternative forms of tourism have been established [20], such as health tourism. Health tourism or medical tourism is the sum of all the relationships and phenomena emerging from a journey by people whose primary motive is to treat or cure a medical condition by taking advantage of medical intervention services away from their usual place of residence. This journey is typically combining with vacation or tourism elements in the conventional sense. [14]. The primary tourism motivation for health tourism is viewed across three domains: psychological, physical, and social [21].

Thirdly, *forest bathing tourism* concerns rural resource utilization as the critical determinants for improving wellness, and thus the development and sustainability of health tourism destinations [22]. Forest bathing or nature therapy can be defined as a set of practices to achieve preventive medical effects through exposure to natural stimuli that contribute to a state of physiological relaxation and boost the vulnerable immune functions to prevent diseases [12]. As the other form of tourism, forest bathing can be categorized as health tourism activities in natural environment settings. In previous studies, forest bathing activity or nature therapy positively affects psychological and physical health [13]. Besides psychological and physical effects, forest bathing can also enhance creativity, indicating forest bathing therapy is beneficial for high-level cognitive functioning [23]. Evidence-based “forest bathing (*Shinrin-Yoku*)” seeks preventive medical effects to improve weakened immune functions and prevent diseases by achieving a state of physiological relaxation through exposure to forest-origin stimuli [24, 13].

Fourthly, *rural tourism* can be defined as a multi-faceted activity that can include nature-based recreational activities, community attractions, and farm-related tourism [25]. Community is an essential aspect of rural tourism development [26, 25]. Tourism in communities is not simply a case of whether to encourage visitors or not, but also what type of visitors and type of tourism the community decides it wants and needs [25]. Still related to rural tourism, community-based tourism (CBT) is a form of tourism

that seeks to empower communities to manage tourism growth and achieve community goals relating to well-being and economic, social, and environmentally sustainable development [27]. This statement aims to present and celebrate local traditions and lifestyles, foster equitable and mutually beneficial host-guest interaction, and conserve nature and culture. Further, there are four key aspects to develop rural tourism: location, sustainable development, community-based features, and experiences [28].

3.2. Community-based forest bathing tourism model

As the theoretical review before, forest bathing or nature therapy combines nature-based tourism and health tourism. According to previous studies, forest bathing or forest therapy can affect psychological and physical health [13]. However, in rural setting areas, the critical factor is community involvement and participation [26]; community-based forest bathing tourism can also enhance social health. This can happen because, in community-based tourism, the opportunity of social interaction between tourists with local communities and other tourists is higher than primary forest therapy. Some influence aspects that can be highlighted in social health are social support: having a person(s) who talk to each other and are happy to be with others; Intimacy, trust, respect, and self-expression in social relationships; exchange with family, neighbors, and participation in group activities [14]. The forest bathing concept can support rural and community-based tourism in its activity because both of these tourism principles are related to environmental conservation [25, 26]. The forest area in rural tourism can affect psychological and physical health. The whole tourism package that the local community brings to their tourists can also affect the nature therapy activity. Nature therapy, besides forest therapy, also includes plant therapy, wooden material therapy, and urban green space therapy [24]. According to that statement, the concept of forest, plant, wooden, and green space therapy might be applied in the tourism product package such as activities, attraction, accommodation, accessibility, amenities, and ancillary services [20] as a system that can enhance tourist experience [17] in a proposed community-based forest bathing tourism model which can be shown on this figure 1.

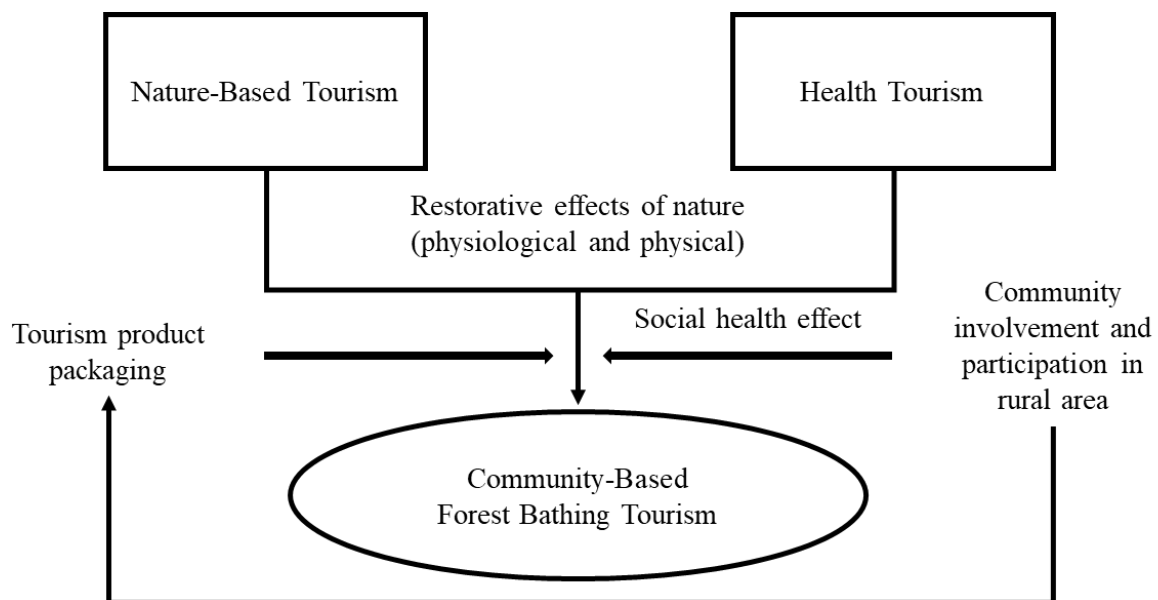


Figure 1. Community-based forest bathing tourism model

3.3. A case study in Sudaji Village

Through the PRA approach, local communities were encouraged to discover the potential of nature-based landscapes that they perceived could be utilized as locations for forest bathing. The field survey was carried out by a transect method to figure out the overall picture of the landscape from the top of the mountain to the downstream (figure 2). The study results showed that the Sudaji Village offers

beautiful landscape views ranging from forests to rivers. Nature offers various exciting attractions during walking, which can be part of the forest bathing activity. By walking, tourists are invited to get closer to nature, enjoying every object and tourist attraction presented naturally. This is consistent with previous studies emphasizing that walking is the core of forest bathing activities that allow people to feel the natural atmosphere during they walking [29, 12, 8, 22, 23].



Figure 2. Walking through various types of landscape characters such as forested landscape (a, b), agricultural land (c), and riparian landscape (d, e)

Furthermore, local people found several potential hotspots located in the three main landscape characters for forest bathing activities, namely Angel Pond, Grigite Climb, Subak Abian Abangan, Gandameru Dam and Temple, Penarukan Dam, Sekumpul Waterfall, and Made's Cottage as a center point of the forest bathing tourism in Sudaji Village (figure 3).



Figure 3. The mental map proposed by local people to promote forest bathing tourism in Sudaji Village (a) with various attractive hotspots such as Sekumpul Waterfall (b), Grigite Climb (c), Subak (d), Penarukan Dam (e), Gandameru Dam and Temple (f), and Penarukan River (g)

The planned activities utilize the main landscape characters in Sudaji Village, namely forests, rice fields, and rivers. During walking in forest areas, the community shows several endemic plant species that are considered to provide peace of mind and body, such as *banyan* (*Ficus benjamina*), *bodi* (*Ficus religiosa*), *bunut* (*Ficus virens*), *loa* (*Ficus racemosa*), *jati* (*Tectona grandis*), *aren* (*Arenga pinnata*), and several types of bamboo scattered in several forest spots (figure 4). Activities that can be performed on these types of plants are meditation using all human five senses (*Panca Tan Matra*) by touching the surface of the stem, listening to the friction of leaves and twigs, and smelling the aroma released from flowers, sap, and fruit (figure 5). According to previous research, local people's belief in several types of plants that are considered sacred can provide positive life energy [30, 31, 32]. In addition, coffee plantations have great potential as part of forest bathing activities because of their function as a pleasant drink because of their caffeine content. Further, the aroma of green coffee beans provides a comfortable sensation, and several studies on coffee show that green coffee beans can provide good benefits for health [33]. Also, several types of local fruit plants species were found that have become the identity of Sudaji Village, such as durian and mangosteen, have the potential to increase tourist interest in forest bathing activities.



Figure 4. Sacred plant species such as *bunut* (*Ficus virens*) (a), *bayan* (*Ficus benjamina*) (b), *bodi* (*Ficus religiosa*) (c), *aren* (*Arenga pinnata*) (d), and *bambu* (*Bambusa vulgaris*) (e)

The survey results in agricultural areas provide an overview of different landscape characteristics with distinctive landscape elements as the identity of the local Balinese community. The agricultural system that still runs the Subak management system is a characteristic that can distinguish forest bathing activities in Sudaji Village. This is reinforced by the status of *Subak*, which has been designated as a world cultural heritage by UNESCO and has the potential to become part of the Globally Important Agriculture Heritage System (GIAHS) in Indonesia [34]. The activity of exploring the rice fields while listening to the sound of the traditional music of the gamelan and enjoying the breeze and the beauty of the rice fields provides a different feel for tourists. So is the case with the Penarukan River area, which is the primary source of irrigation in Sudaji Village. The flow of the river provides an exciting experience for forest bathing activities that enjoy the atmosphere under the stands of trees but can enjoy the experience of interacting with water. Tourists can do meditation by sitting on a rock and enjoying the calm of the gurgling water and the breeze that will help concentration in meditation. Another water-based activity that can be performed is by soaking for a particular time to provide coolness and serenity as well as health (figure 5).

However, traditional knowledge in utilizing natural resources is still limited to the older generation or traditional elders. This is indicated by the limited knowledge regarding the local names of the typical plant species that grow in Sudaji Village. In fact, knowledge of ethnobotany is one of the critical indicators that show the strength of traditional ecological knowledge of society [31]. Although knowledge has not been distributed well, the existence of the *Ngusaba Bukakak* tradition has great

potential as a medium for disseminating knowledge related to Sudaji Village, and this fact can deal with the most significant challenges for rural tourism development [28].



Figure 5. *Panca Tan Matra* or sensing with five senses are proposed such as by walking under a canopy (a, b) and water (d), seeing the beautiful agricultural landscape (c), breathing the fresh air (e) while hearing the soundscape of water (g) and testing the freshwater from nature (f)

As for health tourism, several studies state that a healthy environment must be presented while enjoying the objects and attractions [29, 24]. This needs to be considered in planning tourism activities by ensuring that tourists' trips will get new experiences and healthier physical, psychological, and social conditions. It can be accomplished by preparing a safe and comfortable infrastructure such as on the pedestrian pathway. Furthermore, the current state of the Covid-19 pandemic has provided a good understanding for local people regarding the importance of maintaining health both at home and in the environment. This is important to consider that knowledge and awareness about hygiene and sanitation are essential for both resident and tourist [26]. Besides, health tourism in the rural area is promising to provide a healthier environment during Covid-19 pandemic and of potential future pandemics [35]. A field survey through the PRA approach has succeeded in exploring the local characteristics of the landscape that potential to be promoted as forest bathing tourism. However, this study is concerned with the complexity of encouraging local people to remember and share their experiences and local traditional knowledge. Although the researcher used a human ecology approach, involving experts in anthropology is essential because of the peculiarities of the community's characteristics and the scientific method. In other words, a multidisciplinary or transdisciplinary approach needs to be considered.

4. Conclusion

The community has interpreted the natural landscape that Sudaji Village has great potential to be developed as forest bathing tourism. However, all aspects involved, from biophysical, social, cultural, historical, to the landscape that stretches along with the people's local wisdom, need to be considered. The close relationship between the community and its natural landscape elements requires the readiness of all relevant stakeholders to provide excellent tourism services. The difficulty of the community in managing tourism products and services to be more attractive needs to be strengthened. Tourism products will be more valuable through various training and empowerment of tourism stakeholders such as managers, guides, and the local people involved in tourism activities. Moreover, the guide's ability to

tell every object and attraction needs to be strengthened by mapping the current state of knowledge, collecting the memory of local wisdom, disseminating knowledge and local wisdom in utilizing nature.

Finally, this study suggests that forest bathing tourism has a close relationship to the rural environment and the local people's culture. Therefore, it needs to carefully consider the ecological aspects of the landscape and its people. Landscape ecology is essential because the primary resource of tourist objects and attractions is nature itself. Human ecology is essential because the main actors with interest in the tourism aspects are local communities. Sustainable tourism will be achieved when local people feel the benefits of these activities before being shared with tourists. We also suggest that a practical guideline to perform forest bathing tourism needs to be more studied. This is essential for planning, designing, as well as managing the landscape both in a rural and urban context.

5. References

- [1] Ugolini F, Massetti L, Calaza-Martínez P, Cari Áanos P, Dobbs C, Ostoic S K, Marin A M, Pearlmutter D, Saaroni H, Åaulien I, Simoneti M, VerliĀ A, VuletiĀ D, Sanesi G 2020 Effects of the COVID-19 pandemic on the use and perceptions of urban green space: An international exploratory study *Urban Forestry & Urban Greening* **56** 1-9
- [2] World Urban Parks 2020 *Pathway to Recovery: Wellbeing and Resilience* (New Zealand : World Urban Parks)
- [3] Venter Z S, Aunan K, Chowdhury S, and Lelieveld J 2020 COVID-19 lockdowns cause global air pollution declines *Proc. of the Nat. Acad. of Sci.* **117** 18984-18990
- [4] Zangari S, Hill D T, Charette A T and Mirowsky J E 2020 Air quality changes in New York City during the COVID-19 pandemic *Sci. of the Total Environ.* **742** 140496
- [5] Sharifi A and Khavarian-Garmsir A R 2020 The COVID-19 pandemic: Impacts on cities and major lessons for urban planning, design, and management *Science of the Total Environment* **749** 142391
- [6] Zhu H and Deng F 2020 How to influence rural tourism intention by risk knowledge during COVID-19 containment in China: mediating role of risk perception and attitude. *Int. J. of Environ. Res. and Pub. Health* **17** 3514
- [7] Luzar, Diagne, Gan and Henning 1995 Evaluating nature-based tourism using the new environmental paradigm *J. Agri. and Applied Eco.* **27** 544-555
- [8] Ohe Y, Ikei H, Song C and Miyazaki Y 2017 Evaluating the relaxation effects of emerging forest-therapy tourism: a multidisciplinary approach *Tour. Man.* **62** 322-334
- [9] Tsunetsugu Y, Park B J and Miyazaki Y 2010 Trends in research related to "Shinrin-yoku" (taking in the forest atmosphere or forest bathing) in Japan *Environ. Health and Prev. Med.* **15** 27-37
- [10] Li Q 2018 *Shinrin-Yoku: The art and science of forest bathing* (UK: Penguin)
- [11] Mao G X, Lan X G, Cao Y B, Chen Z M, He Z H, Lv Y D, Wang Y Z, Hu X L, Wang G F and Yan J 2012 Effects of short-term forest bathing on human health in a broad-leaved evergreen forest in Zhejiang Province, China. *Biomed. Environ. Sci.* **25** 17-24
- [12] Miyazaki Y, Song C and Ikei H 2015 Preventive medical effects of nature therapy and their individual differences. *Jpn. J. Phys. Anthropol.* **20** 19-32
- [13] Hansen M M, Jones R and Tocchini K 2017 *Shinrin-Yoku* (forest bathing) and nature therapy *Int. J. of Environ. Res. and Pub. Health* **14** 1-37
- [14] Narottama N and Susiyanthi A 2016 Health tourism in Asia: the readiness of Bali's health tourism *J. of Bus. on Hospit. and Tour.* **2** 16
- [15] Chambers R 1994 Participatory rural appraisal (PRA): analysis of experience *World Dev.* **22** 1253-1268
- [16] Tudor C 2014 *An Approach to Landscape Character Assessment* (UK: Natural England)
- [17] Arsenault N and gate T 2004 *Defining tomorrow's tourism product* (Canada: CTC Distribution)
- [18] Metin T 2019 *Nature-Based Tourism, Nature Based Tourism Destinations' Attributes And*

- Nature Based Tourists' Motivations in book Travel Motivations: A Systematic Analysis of Travel Motivations in Different Tourism Context* (Publisher: Lambert Academic Publishing)
- [19] Boo E 1990 *Ecotourism: The Potentials and Pitfalls* (Washington, D.C: World Wildlife Fund)
 - [20] CTH 2011 *Confederation of Tourism and Hospitality: Destination Analysis Study Guide* (London: BPP Learning Media Ltd.) 174-200
 - [21] Lee T J, Han J S and Ko T G 2020 Health-oriented tourists and sustainable domestic tourism *Sustainability* **12** 1-12
 - [22] Pessot E, Spoladore D, Zabgiacomì A and Sacco M 2021 Natural resources in health tourism: a systematic literature review *Sustainability* **13** 1-17
 - [23] Yu C P and Hsieh H 2020 Beyond restorative benefits: evaluating the effect of forest therapy on creativity *Urb. For. & Urb. Greening* **51** 1-7
 - [24] Song C, Ikei H and Miyazaki Y 2016 Physiological effects of nature therapy: a review of the research in Japan *Int. J. of Environ. Res. and Pub. Health* **13** 1-17
 - [25] Beeton S 2006 *Community Development Through Tourism* (Australia: Landlink Press)
 - [26] Narayanasamy N 2009 *Participatory Rural Appraisal: Principle Methods and Application* (New Delhi: SAGE Publications Inc.)
 - [27] ASEAN 2016 *ASEAN Community Based Tourism Standard* (Jakarta: ASEAN)
 - [28] Rosalina P D, Dupre K and Wang Y 2021 Rural tourism: a systematic literature review on definitions and challenges *J. of Hospi. and Tour. Manag.* **47** 134-149
 - [29] Jia B B, Yang Z X, Mao G X, Lyu Y D, Wen X L, Xu W H and Lyu X L 2016 Health effect of forest bathing trip on elderly patients with chronic obstructive pulmonary disease *Biomed. & Envi. Sci.* **29** 212-218
 - [30] Dahlan M Z, Fukamachi K, Imanishi J and Shibata S 2016 Local people's knowledge of plant in a kabuyutan sacred natural site in Indonesia and its important for environmental conservation *J. of the Japanese Soc. of Reveg. Tech.* **42** 32-37
 - [31] Dahlan M Z, Fukamachi K, Shibata S and Imanishi J 2017 Importance of kabuyutan sacred natural sites as biodiversity hotspots in West Java Province, Indonesia *J. of the Jap. Soc. of Rev. Tech.* **43** 103-108
 - [32] Verschuuren B, Wild R, Mcneely J and Oviedo G 2010 *Sacred Natural Sites: conserving nature and culture* (London & Washington, DC: EarthScan)
 - [33] Ciaramelli C, Palmioli A, and Airolidi C 2018 Coffee variety, origin and extraction procedure: implications for coffee's beneficial effects on human health *Food Chem.* **278** 47-55
 - [34] Dahlan M Z, Dewi M R and Putri V O 2020 Inisiatif GIAHS untuk Pengelolaan Lanskap Pertanian Tradisional Berkelanjutan: Studi Kasus di Desa Sudaji, Kabupaten Buleleng, Provinsi Bali *J. Lanskap Indonesia* **12** 13-22 (In Indonesian)
 - [35] Agnoletti M, Manganelli S and Piras F 2020 Covid-19 and rural landscape: the case of Italy *J. Land. and Urb. Plan.* **204**

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