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## **EVALUATING SUSTAINABLE SYNERGY: TRI HITA KARANA AND TURTLE ECOTOURISM AT TCEC SERANGAN, BALI**

**Ni Made Ratminingsih**

Doctoral Program in Tourism Udayana University, Bali

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### **Abstract**

Ecotourism, a prominent trend in the tourism industry since the 1990s, not only provides an additional source of income, especially in developing countries, but is also recognized as a crucial tool for nature conservation. This paper explores the role of ecotourism in the Turtle Conservation and Education Center (TCEC), where it is thought to align with the local socio-cultural values, aiming to reduce conflicts between the local communities and business interests.

One essential aspect of evaluating ecotourism's success lies in the implementation standards and criteria used. Assessing the performance level can be achieved through an audit of the concept or criteria, conducted either on-site or off-site. This paper provides insights into the implementation of ecotourism in TCEC and how its performance is measured and assessed.

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**Keywords:** Ecotourism, Turtle Conservation, Socio-cultural Values, Implementation Standards Performance Evaluation

### **1. Introduction**

Ecotourism is a popular trend in tourism industry since 1990s because it has been considered to be not only give extra income for many people especially those in developing countries (Eadington and Smith, 1992), but also considered important tool to protect the nature. In Turtle Conservation and Education Center (TCEC), it is developed in line with local socio-culture of the local communities so it is believed to minimize conflict between the local and businessmen.

The performance of implementation of ecotourism can be assessed using certain standards or criteria. The level of performance achieved can be determining through an audit on implementation of the concept or criteria that conducted either on site or off site (Dalem, 2011).

The tourist attractions that was assessed on this research was the TCEC, Serangan, Denpasar City, Bali. This centre has been a favourite turtle conservation and education centre since being opened in 2006 and would like to be developed as a genuine ecotourism centre to be a model for others in Bali province as well. TCEC should have a great potential, as its strategic location close to some prominent tourism resorts located close by to it in southern part of Bali Island, such as Sanur, Nusa Dua, Tuban, and Kuta. This program is expected to be not only boost up economic benefit to the locals in Serangan, but also improve conservation of the species, as well as bring impacts to support socio-culture of the locals.

### **2. Theoretical Review**

The Ecotourism Society (TES) defines ecotourism as a responsible travel to natural areas that protect the environment and improve the welfare of the local communities (Western, 1993). Indonesian Ecotourism Society or Masyarakat Ekowisata Indonesia (MEI), also released a similar definition about ecotourism, which is responsible tourism activities on a natural areas or on an area of which naturally managed, support conservation of environment (nature and culture) as well as improving welfare of local communities (Anon., 1997; Sudarto, 1999; Dirjen Bangda Depdagri, 2000; Dalem, 2002).

On International Union for Conservation of Nature's (IUCN's) document (1996), ecotourism defined as a responsible environmental journey and a visit to relatively undisturbed natural areas to enjoy and appreciate nature (and any connected equipment cultural, historic and current), a trip that promotes conservation, minimizes the negative impact of visitors and stimulate the involvement of the local population in the sharing of socio-economic benefits (Nicosia and Perini, 2016).

Ecotourism criteria according to Indonesian Ecotourism Society or Masyarakat Ekowisata Indonesia (MEI) 1996 is as follows (Anonim, 1997): On principle 1 (Concern, take responsibility and commitment on nature conservation), its criteria are: (a) Pay attention on carrying capacity of tourism resort; (b) Controlling number of visitor (visitor management), facilities / infrastructure to fit with carrying capacity of tourist attractions and destinations; (c) Improve awareness and appreciation of ecotour operations on environment (nature and culture); (d) Operational of ecotourism activities must utilized local resources in a sustainable way; (e) Minimalized its negative impacts; (f) Environmentally friendly and the guarantee for the sustainability of ecotourism businesses. For principle 2 (Development must be based on deliberation and approval of the local community), its criteria are as follows: (a) Building partnership relationships with the community in the ecotourism planning and management processes; (b) Clearly and correctly informing the direction of the development of the area to the local community; (c) Free to the community to accept or reject ecotourism development. Principle 3 (Providing benefits to local communities), the criteria are: (a) Opening opportunities for local communities to become economic actors in ecotourism activities, both actively and passively; (b) Provide assistance and empowerment to local communities in an effort to improve socio-economic welfare; (c) Improvement of local community skills. Principle 4 (Be sensitive to and respect socio-cultural values and religious traditions adopted by the local community), the criteria are: (a) A code of ethics for tourists must be introduced to the management and tourists; (b) Together with the community, develop a code of conducts for tourists in accordance with the socio-cultural values and religious traditions of the local community. Principle 5 (Obey the laws and regulations in the environmental and tourism sectors), the criteria are: Pay attention and consistently implementing the laws and regulations (a) Law Number 4 year 1982 concerning Principles of Environmental Management (which has been updated with Law Number 32 year 2009 concerning Environmental Protection and Management); (b) Law Number 5 year 1990 concerning Conservation of Biological Natural Resources and Their Ecosystems; (c) Law Number 24 year 1992 concerning Spatial Planning (which has now been updated into Law Number 26 year 2007 concerning Spatial Planning); (d) Presidential Decree Number 32 year 1990 concerning Protected Areas; (e) Law No. 9 year 1990 on Tourism (updated by Law No. 10 year 2009 on tourism); and (f) other related regulations.

The literature review on ecotourism in Indonesia made by Dalem (2002) published by the Asian Productivity Organization (Japan) did not touch in detail about the synergy with THK values in the development of ecotourism destinations. Other publications on ecotourism, among others, were written by Avenzora (2003) about evaluating the concept of ecotourism; Manurung (2002) about ecotourism in Indonesia which places more emphasis on action plans, and ecotourism practices, especially regarding product development, improvement efforts, marketing, funding, monitoring and evaluation. The article written by Dalem and Astarini (2000) about achievements of ecotourism in Bali did not briefly discuss the relationship between ecotourism and THK. Pratomo (2006) wrote the formulation of ecotourism development strategies in Gunung Gede Pangrango National Park. Other ecotourism research includes Dalem et al, 2012 who studied birds as ecotourism attractions in the Nusa Dua Tourist Resort, ecotourism in Pemuteran (Adnyani, 2012). A study on Bali ecotourism was put forward, among

others, by Arida and Baiquni (2014), who emphasized three types of ecotourism in this area, namely ecotourism that is investor driven, community driven and government driven.

The application of ecotourism in urban areas is a relatively new concept, but it has been shown to provide environmental benefits, for example in several cities of Kenya, including Nairobi, Mombasa and Kisumu (Okay-ch, 2009). Wiranatha and Dalem (2010) wrote "implementation of local knowledge "Trihita Karana" on ecotourism management in Bali", but the discussion on his writings did not focus on turtles, but focuses on Macaca ecotourism in Bali (Alas Kedaton, Sangeh and Monkey Forest Ubud). Other studies that have been conducted related to THK include Sari and Dalem (2012) in an accommodation that can also act as a retreat center in Mambal-Badung, research and publications for hotels in Bali by Dalem (2014) and so on. These two types of publications targeted tourist accommodation.

According to the results of the regional Bali ecotourism workshop in Sanur (2002), it was stated that the principles of ecotourism in the Bali region are: (1) Having concern, commitment and responsibility for the conservation of nature and cultural heritage; (2) providing interpretations that provide opportunities for tourists to enjoy nature and increase their appreciation to nature; (3) continuously contribute to the local community and empower the local community; (4) be sensitive and respect to the socio-cultural values and religious traditions of the local community; (5) comply with the prevailing laws and regulations, (6) its development must be based on deliberation and with the approval of the local community; (7) consistently provide satisfaction to consumers; (8) marketed and promoted honestly and accurately so that it meets expectations (responsible marketing); (9) a harmonious and balanced management system in accordance with the THK concept (Dalem, 2004).

The criteria for the principles of ecotourism in Bali (Dalem, 2004) can be described as follows: Principles (1) Having concern, commitment and responsibility for the conservation of nature and cultural heritage, the criteria are: (a) Achieving a balance of land use; (b) Use of environmentally friendly technology; (c) the use of cultural heritage sites as ecotourism attractions must take consideration to the carrying capacity; (d) Conserving biodiversity and cultural heritage; (e) Pay attention to the existence of endemism. Principle (2) Provide interpretations that provide opportunities for tourists to enjoy nature and increase their appreciation to nature, with criteria as follows: (a) Provide professional and licensed tour guides; (b) Providing supporting facilities and adequate information related to ecotourism attractions; (c) Involve local customary institutions. Principle (3) Continuously contribute to the local community and empower the local community, the criteria are: (a) Prioritizing the use of local workers according to their expertise; (b) Prioritizing the use of local products for the operation of ecotourism attractions; (c) Involve local customary institutions. Principle (4) Be sensitive to and respect to socio-cultural values and religious traditions of the local community, the criteria are: (a) development and operations are adjusted to local norms and local wisdom; (b) The existence and activities of ecotourism do not interfere with the religious activities of the local community. Principle (5) Complying with the prevailing laws and regulations, the criteria are: (a) Obeying the law and other related regulations; (b) Obey the local village *awigawig*. Principle (6) The development must be based on deliberation and with the approval of the local community, the criteria are: (a) Development needs to be approved by the community and local customary institutions; (b) establish communication and coordination with local communities and customary institutions in the development of tourist attractions. Principle (7) Consistently provide satisfaction to consumers, the criteria: (a) Provide facilities and provide excellent and satisfactory service to consumers; (b) Provide a medium to obtain feedback from consumers. Principle (8) Marketed and promoted honestly and accurately so that it is in line with expectations (responsible marketing), the criteria: (a) Marketing materials must be accurate,

clear and of high quality; (b) Marketing materials that are honest and must be in accordance with reality. Principle (9) a harmonious and balanced management system in accordance with the Trihita Karana concept, the criteria: (a) Paying attention to the harmonious relationships between humans and God (*parhyangan*); (b) Paying attention to harmonious relationships between humans and humans (*pawongan*); (c) Paying attention to harmonious relationships between humans and the environment (*palemahan*) (Dalem (2004).

Krummeck et al (2020) researched "Tourists' behavioral intention towards ecotourism in Bali under consideration of issue-related knowledge". This research was conducted at Monkey Forest Ubud, Jatiluwih Tourist Attraction, and West Bali National Park, which is different from what was carried out in this study which focused on turtle ecotourism research based on Trihita Karana (THK).

Research by Dalem (2011) shows that in THK's research in the hospitality sector with the title "Achievements and Challenges of Implementation of "Trihita Karana" for Creating Sustainable Tourism in Bali Indonesia: A Case Study in Hotel Sectors", using 24 samples of participating hotels The THK Awards in Bali found that the implementation of THK in the *parhyangan* aspects was the weakest or lowest in their performance with a score of 62 out of a maximum score of 100. The highest was the *pawongan* aspects with a score of 73, and *palemahan* which was between the second with a score of 72. A study conducted by Tisdell and Wilson (2003) on "Does Ecotourism Contribute to Sea Turtle Conservation? Is the Flagship Status of Turtle Advantageous?" This study discusses the doubts that sea turtles are the prominent species for tourism that uses wild life as attractions. In some cases, this turns out to be a responsibility for turtle conservation, but in other cases where for example turtle ecotourism has been developed, it has made a positive contribution to turtle conservation. Examples of both cases have been given. Particular attention was paid to the development of turtle-based ecotourism at Mon Repos Beach near Bundaberg, Australia. These developments are set in their historical context and their contribution to conservation is discussed. The headstart project for turtles in Sri Lanka is a tourist attraction. While they are promoted to have positive conservation consequences and surveys show that visitors are overall convinced of this, the effect on turtle conservation is uncertain. Turtle farming provides the basis for tourism and can contribute to turtle conservation in the ways outlined. It is said that less attention has been paid to the legends, culture and history associated with turtles in promoting turtle-based tourism. This is supported by evidence in Australia. Inadequate use of Australian native turtles with sea turtles in turtle-based tourism.

Beneficial scope exists for developing the relationship between humans and turtles further than this currently found in promoting turtle-based tourism. This could add to the role of turtle-based tourism in promoting turtle conservation.

### **3. Research Methods**

In order to find out the status of TCEC, an assessment was conducted between 2020-2021, using turtle-based ecotourism in line with Balinese philosophy of THK's principles and criteria (Dalem et al., 2021). The data were collected through on site observation, conducting interview, and document checking. The data then were analysed by giving Guttman's score which classifying the fact on site fulfil the criteria (score 1) or not (score 0) for each criteria (Iskani, 2014) and the percentage of fulfilment to the standards or criteria was calculated. The achievement or performance of TCEC was then classified into excellent/very good, good, moderate, fair, and fail (affiliate) for the percentage of fulfilment to the criteria of 85-100%, 75 – 84%, 65-74%, 50-64%, <50% respectively (Dalem, 2011).

### **3. Results and Discussion**



In general, results of this research showed that implementation of the turtle-based ecotourism that is in line with the THK at TCEC Serangan reached 92%, indicating an excellent achievement or performance. More detail about this could be described as follows.

Results of evaluation for principles 1 (Sustainability principles, care of, committed to, and nature conservation and cultural heritage) that consists of 6 criteria, in which 1 criterion was not applicable, so, 5 fit with 5 criteria (or 100%). (Table 1). One criterion that was not applicable for the TCEC was utilization of cultural heritage as tourist attractions must be considering the carrying capacity (because no cultural heritage utilized for turtle-based ecotourism products at TCEC Serangan).

**Table 1: Results of evaluation of implementation of principle1 (Sustainability principles, care of, committed to, and nature conservation and cultural heritage)**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 1 - Sustainability principles, care of, committed to, and nature conservation and cultural heritage	a. Achieving a balance of land use.	Yes
	b. Use of appropriate and environmentally friendly technology.	Yes
	c. Utilization of cultural heritage as a tourist attraction that is adjusted to the carrying capacity	N/A
	d. Preserving nature, including biodiversity and cultural heritage.	Yes
	e. Pay attention to the presence of endemicity.	Yes
	.Spatial arrangement according to conservation needs (eg maintaining a good location for turtle breeding) and services to visitors (tourists).	Yes

N/A – Not Applicable; Source: 2020-2021 research data.

A study discusses the doubts that sea turtles are the prominent species for tourism that uses wild life. In some cases, this turns out to be a responsibility for turtle conservation, but in other cases where for example turtle ecotourism has been developed, it has made a positive contribution to turtle conservation (Tisdell and Wilson, 2003). This can be read on their article entitled “Does Ecotourism Contribute to Sea Turtle Conservation? Is the Flagship Status of Turtle Advantageous?”

On principle 2, providing interpretations that give opportunity to tourists to enjoy nature and improving tourists' appreciation to nature, 75% criteria has been fulfilled by TCEC (Table 2). One criterion that was fail to be fulfilled was the criterion of 2(a), ie. Providing professional and licensed as well as competence tour guides on turtles in various aspects (conservation, culture/religion aspects, etc.).

**Table 2: Evaluation Results of the Application of Principle 2 Provides an interpretation that provides opportunities for tourists to enjoy nature and increase their love for nature**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 2: providing interpretations	a. Provide professional and licensed tour guides who have competence about turtles in various aspects (including aspects of conservation, culture/religion, etc.).	Tidak

that give opportunity to tourists to enjoy nature and improving tourists appreciation to nature	b. Provide supporting facilities and adequate information related to tourist attractions.	Ya
	c. Interaction with nature/experience with nature (experiencing natural areas) that is unique/distinctive and memorable.	Ya
	d. Comparative study to different model facilities to standardize service model effectiveness, convenience, completeness.	Ya

N/A – Not Applicable; Source: 2020-2021 research data.

TCEC has proven to be unable to show that it has a licensed tour guides. This need to be fixed, because even though the guides seem to be very professional (as their interpretation criteria fulfilled those of Tilden (2007) as quoted by Jenkins, 2009), they still need formal licenses to be legal tour guides.

On principle 3, providing continuous contribution to the local community as well as empowering local community, 5 out of 5 criteria (or 100%) (Table 3) have been fulfilled. On Guttman's score TCE got a score of 5.

**Table 3: Results of evaluation implementation Principle 3: Continually contribute to the local community and empower the local community**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 3: Providing continuous contribution to the local community as well as empowering local community	a. Development of local human resources for turtle ecotourism (guides, managers, etc.) towards professional staff.	Yes
	b. Prioritizing the use of local workers according to their expertise.	Yes
	c. Prioritizing the use of local products for tourist attraction operations	Yes
	d. Involve local traditional institutions.	Yes
	e. There is income sharing (income) to traditional villages, and traditional villages get contributions clearly and in a fair proportion.	Yes

N/A – Not Applicable; Source: 2020-2021 research data.

On International Union for Conservation of Nature's (IUCN's) document (1996), ecotourism it is mentioned that ecotourism should stimulate the involvement of the local population in the sharing of socioeconomic benefits (Nicosia and Perini, 2016).

On principle 4 (Table 4), sensitive and respect to local socio-culture and religious values of the local communities. On Guttman's score of 3 or 100% fulfil the criteria.

**Table 4: Result of evaluation implementation Principle 4: Sensitive and respect to local socio-culture and religious values of the local communities.**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 4: Sensitive and	a. Development and operations are adjusted to local norms and local wisdom	Yes

respect to local c socio-culture and religious values of the local communities	. The existence and activities of ecotourism do not interfere with the religious activities of the local community	Yes
	. Maint ain / respect local wisdom, cred customs and sa values	Yes

N/A – Not Applicable; Source: 2020-2021 research data

TCEC Serangan has proven to respect people and local values when operates. It operational has also proven not to disturb the religious activities, such as Hindu's ceremonies that are being undertaken incidental or regularly by local people.

On principle 5, obey to law or regulations, TCEC Serangan got the 3 point with 100% criteria fulfilled.

**Table 5: Results of evaluation of implementation Principle 5: obey to the law or regulations**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 5: obey to the law or regulations.	a. Complying with laws and other related regulations	Yes
	b. Obey the <i>awig-awig</i> of the local village and the <i>awig-awig</i> of the traditional Balinese village in general.	Yes
	c. Ecotourism arrangements are in accordance with the local village <i>pararem</i> .	Yes

N/A – Not Applicable; Source: 2020-2021 research data.

Through interview to management of TCEC and to Serangan customary village secretary, and document checking it can be concluded that TCEC fulfil the criteria 5(a), 5(b), and 5(c). TCEC Serangan generally obeys to the law, regulations and traditional Bali law such as *awig-awig* and *perarem*. Evaluation on principle 6, the development of turtle-based ecotourism must be based on a discussion or dileberation and agreement from the local community. Two out of two criteria on this principle have been fulfilled (100%), with Guttman's score of 2.

**Table 6: Results of evaluation of the application of principle 6 (its development must be based on deliberation and with the approval of the local community)**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 6: The development of turtlebased ecotourism must be based on a discussion and agreed by the local community.	a. Development needs to be approved by the community and local customary institutions.	Yes
	b. Establish communication and coordination with local communities and traditional institutions in the development (and operation of) tourist attractions.	Yes

N/A – Not Applicable; Source: 2020-2021 research data.

The key institution in development of turtle-based ecotourism at TCEC Serangan is customary village of Serangan. The management, institution, development plan, and other important things at TCEC were based on decision made by management of TCEC with agreement control from Serangan

customary village. So, the relationship between TCEC Serangan and Serangan customary village is very good.

On principle 7, consistently providing satisfaction to the consumers (tourists), the Guttman's score of 4 or 80% was achieved by TCEC Serangan (Table 7). One criterion that was fail to be fulfilled by TCEC was criterion 7(b), ie. providing media for getting feedback from consumers (tourists).

**Table 7: The results of the evaluation of the application of principle 7 consistently provide satisfaction to consumers**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 7: Consistently providing satisfaction to the consumers (tourists).	a. Provide facilities (including experimental media) and and provide excellent satisfactory service to consumers.	Yes
	b. . Provide media for obtaining feedback from consumers.	No
	c. The existence of officers, facilities and infrastructure, ICT and response mechanisms to feedback from consumers or tourists quickly and satisfactorily.	Yes
	d. Conduct information updates, and evaluations.	Yes
	e. Comparative/comparative studies with similar/other facilities.	Yes

N/A – Not Applicable; Source: 2020-2021 research data.

TCEC has got enough facilities to be developed as turtle-based ecotourism, has got enough staffs, updated information and evaluation, as well as has conducted comparative studies with similar institutions. Just the feedback media have not met basic criteria that to be considered enough.

On principle 8, honestly and accurately marketed and promoted so fulfilled expectation (responsible marketing), just one criterion out of six has fail to be fulfilled by TCEC Serangan (Table 8). The Guttman's score achieved was 5 or 83%. The criterion fail to fulfil was that of 8(f), ie, has a unique, iconic Bali branding souvenirs that can be a memorable gift for tourists.

**Table 8 Result of evaluation in implementation of Principle 8: Honestly and accurately marketed and promoted so fulfilled expectation (responsible marketing).**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 8: Honestly and accurately marketed and promoted so fulfilled expectation (responsible marketing).	a. Marketing materials must be accurate, clear and of good quality.	Yes
	b. Marketing materials that are honest and must be true to reality.	Yes
	c. Utilization of digital technology (including applications), to facilitate access and expand networking with organizations at local, national and international levels.	Yes
	d. Establish positive communication between related institutions, both in the local, national and international scope so that it can be global.	Yes
	e. One-stop coordinated marketing process by developing branches.	Yes



	f. Having a unique Balinese branding souvenir as an icon that can be memorable for tourists.	No
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N/A – Not Applicable; Source: 2020-2021 research data.

On an interview conducted on the onsite audit, it was found that TCEC has fulfilled 5 out of 6 criteria of THK. Marketing materials, utilization of digital technology, positive communication across institutions, and one gate marketing policy has been implemented, but the specific unique tour tlesouvenir with Bali branding has not been fulfilled.

On principle 9: Harmonious and balanced management system in line with the Trihita Karana, TCEC has been able 100% to fulfil the turtle-based ecotourism criteria based on THK. The Guttman's score for this was 4.

**Table 19: Result of evaluation of implementation Principle 9: Harmonious and balanced management system in line with the THK.**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 9: Harmonious and balanced management system in line with the THK.	a. Have a good governance.	Yes
	b . Paying attention to the harmony of the relationship between humans and God ( <i>parhyangan</i> )	Yes
	c. Paying attention to the harmony of the relationship between humans and humans ( <i>pawongan</i> )	Yes
	d .Paying attention to the harmony of the relationship between humans and the environment ( <i>palemahan</i> )	Yes

N/A – Not Applicable; Source: 2020-2021 research data.

The significant of ecotourism concept and local knowledge of Trihita Karana in many aspects of life in Bali has been recognized. For example Wiranatha and Dalem (2010) have reported about this on forest based ecotourism attractions in Bali (Alas Kedaton, Sangeh and Monkey Forest Ubud).

In Serangan, for example TTEC has implement THK quite well. The structure of TCEC's buildings was based on triangga, which meant that the structure of buldingsin TCEC followed the structure of human bodies (head, body and feet), and this has been sighted in TCEC. The zoning of land on TCEC has also followed the trimandala (3 zones concept), in which it has zone for spiritual activities or *parhyangan*, for human or community activities or *pawongan*, and for nature or coservationactivities or *palemahan*. On principle 10, Self-protection, two criteria have been fulfilled out of two or 100%, with Guttman's score of 2.

**Table 10 Result of evaluation of implementation principle 10: Self-protection principles**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 10: Self	Limitation of direct contact with fauna (turtles)	Yes

protection	Hygiene behaviour.	Yes
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N/A – Not Applicable; Source: 2020-2021 research data

TCEC Serangan has implemented Code of Conducts (CoCs) to manage contact between the turtle and humans (TCEC staffs and visitors). Where possible, no contact concept should be implemented, except for certain situations, such as egg relocation, hatching release, sick animals handling, research that need turtle handling, etc. When needed, participants must use appropriate hand gloves, to minimise direct contacts.

Salmonella has been a common threat to human that can be dispersed from sea turtles. Others such as parasites, become other sources of threat. In contrast, human can also spread disease to turtles. On principle 11, Science, knowledge, and local wisdom empowerments as a community based learning media, TCEC has achieved 3 points because its performance has fulfilled 100% of the 3 criteria utilized.

**Table 11: Result of evaluation of implementation of Principle 11: Science, knowledge, and local wisdom empowerments were as community based learning media**

Principle	Criteria	Implementation (Yes, No, N/A)
Principle 11: Science, knowledge, and local wisdom empowerments were as community based learning media.	Knowledge, knowledge and local wisdom are well identified and recorded.	Yes
	There is a process of communication and learning together with various methods between tourism managers and visitors.	Yes
	c. Involve school children in turtle tourism.	Yes

N/A – Not Applicable; Source: 2020-2021 research data

Scientific approach is always important on ecotourism, including also on turtle based ecotourism. This approach has been running well in TCEC Serangan. In this institution, students from elementary schools up to universities have been getting benefit from TCEC's learning turtle programs. Sample of turtle eggs, hatchlings, up to mature adult, have been available there. The site has also provide interpretation to visitors while taking on site tour if the visitors wanted to.

The local wisdom has been identified to be used in educating school students who wanted to learn about turtle and turtle conservation at TCEC Serangan. May be the number of local wisdom that has been identified need to be increased written and published in its interpretation materials. Learning together between visitors and the host (TCEC) has occurred. Tourists may to some extent have learned new thing from TCEC Serangan, but TCEC Serangan, in other situation, TCEC Serangan may also have learned a new thing from skillful or professional tourists who visited TCEC.

Evaluation on principle 12, Implementation of CHSE protocols, TCEC has reached 100% of the turtle-based ecotourism criteria, or with Guttman score of 5 from maximum of 5.

**Table 12: Result of evaluation of implementation of Principle 12: Implementation of CHSE protocols**

<b>.Principle</b>	<b>Criteria</b>	<b>Implementation (Yes, No, N/A)</b>
Principle 12: Implementa taion of CHSE peotocols.	a. Have a good planning of the CHSE protocol.	Yes
	b.Availability of adequate and well-maintained CHSE supporting facilities.	Yes
	c. Good implementation of the CHSE protocols.	Yes
	d.Monitoring and evaluation of the implementation of the CHSE protocols	Yes
	e.Review management of CHSE protocol regularly for continuous improvement.	Yes

N/A – Not Applicable; Source: 2020-2021 research data

In minimising the risk out of spreading out of Covid-19, implementataion of CHSE protocols has been massively promoted by Indonesian government, industries, arm forces, etc. Government has also launched CHSE certification scheme as a tool that make it possible for the tourists to identify which accommodations, restaurants, destinations and other tourism institutions have been certified in implementation of CHSE protocols, so make turists convenience to choose those of which considered to be safe most so they can enjoy their visit to Bali or Indonesia very much.

TCEC Serangan has achieved a perfect score of 5 out of 5 on 12's principles of turtle-base ecotourism criteria. The problem with implementation of this CHSE protocols was that TCEC has not been having enough 100% facilities to support this. For example washing hand facilities need to be installed more to be more accessible to visitors, especially near the prominent facilities such as at the or near the meeting hall. In term of environment, TCEC must identify all flora and fauna available on its site, so the management and conservation plans can be set appropriately. Maintenance of CHSE facilities could be a concern especially because of fund limitation available during the pandemic, when no visitors visited TCEC, and even the minimum operational cost was still hard or unable to be covered by the management of TCEC.

## **5. Conclusions and Recommendations**

### **5.1 Conclusions**

TCEC has been very good or excellent in implementation of turtle-based ecotourism in line with the THK. This was indicated by its performance to fulfil 44 out of 48 or 92% of the turtle-based ecotourism criteria has been in line with the THK criteria.

### **5.2 Recommendations**

It is recommended that TCEC to do some corrective actions to fix up its performance on some points that have failed in fulfilling the criteria on the turtle-based ecotourism based on THK. In addition, a regular annual audit must be carried out to get an update TCEC data that can be used to set up plans on sustainable turtle-based ecotourism products that is in line with the THK.

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