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Research Article

Sustainability of Community Based Ecotourism Development after the Impact of Tsunami Disasters: Comparison between Buddhism Community and Muslim Community in Phuket Province, Thailand

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Abstract

Community base ecotourism development has a tool for biodiversity conservation and environment protection including social sustainability and sustainable community economic development. This paper assesses implementation of CBED and compares sustainability of ecotourism development between Tha Chat Chai Buddhist (TCCB) community and Bang Rong Muslim (BRM) community. The data collected mainly through the household questionnaire survey, field observations, in depth interviews and focus group discussion. 315 households were informed in this paper including 160 of TCCB and 155 of BRM participants. The study use 74 indicators based on 7 dimensions, environment, social, cultural heritage, economic, marketing, spirituality and religious traditions and policy. Results from this analysis indicate that sustainability of CBED in two communities is significant different in social, marketing and spirituality and religious traditions context. BRM community is very successful in sustainability of CBED more than the TCCB community. The results reveal that varied greatly between two communities with empowerment and local community involvement in implementation of CBE. However, both communities have poorest sustainability on economic dimension. The need to achieve sustainability of CBED, partnerships should be collaborative making design policies for enhancing CBE to sustainable development.

Keywords

Community based Ecotourism; Sustainability ecotourism; Thai Muslim community; Thai Buddhism community

Introduction

On December 26, 2004, on the Andaman coast of southern Thailand a tsunami occurred. It strongly hit many coastal villages in the Phuket province. The tsunami damaged the utilization of coastal resources; marine areas of attractions, agricultural, fishing, tourism infrastructure and tourism industries; accommodations, transportation, restaurants etc. [1]. Since the disaster occurred,

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local people tried their best to recover from the big catastrophe. They established a post tsunami sustainable recovery program as a whole, one of development this planning is the establishment of sustainable ecotourism development. Ecotourism has a huge impact on the environment, economic, social [2]. Ecotourism is the travel to natural resources and unique cultural and traditions without causing any damage to natural and cultural resources [3]. The purpose of ecotourism is to learn about the culture and history not to change or destroy the biodiversity and ecosystem [4]. CBE is the empowerment of the host community to be involve in the decision making of the ecotourism planning taking in consideration both the positive and negative effects on the environment, social-culture and economic [5]. Encouraging ecotourism development in community that solely depend on the resources. It is essential that awareness raising and practical implementation of sustainability is to gain community support. [6]. According to Kevin [7] has applied sustainable tourism indicator to determine the sustainability of CBE. "Indicators have been identified as desirable instruments and/or measuring rods to assess and monitor the progress towards sustainable development" [8]. Global Ecovillage Network [9] has established guide for local and community based planning initiative to move toward more sustainability and develop community sustainability assessment as tool for existing villagers and communities to compare their current status of target for ecological, social, cultural and spiritual sustainability. WTO [10] has been promoting using sustainable tourism indicators to measuring the sustainability tourism management as essential tools for policy-making. In an attempt to improve the sustainability of the CBE sites were consequently determined using sustainable tourism indicators to measures. This paper aims to assess the implementation of CBED and compare sustainability of ecotourism indicators. Sustainable ecotourism development based on sustainable management seven dimensions will help to make it more profitable for the host community. CBE has a tool for biodiversity and natural environment conservation including protection of cultural heritage, based on seven dimensions that empowerment the local community involvement in a sustainable management to build sustainable community development.

Study Location

The TCCB and BRM communities are located in Phuket Province on the southern coast of Thailand (Figure 1). Phuket is the largest island of Thailand, it is recognized as one of Thailand's premier destinations. The area is one of the most popular holiday destinations for tourists. At the same time, there are various natural and cultural attractions through various types of ethnic and religious groups. TCCB and BRM communities has been supporting CBE and implemented by local government agencies (LGA). TCCB community located in Moo 5 Mai Khao sub-district. The population consists of aboriginal groups; Thai Buddhism (Theravada Buddhism), Sunrise, Moklen or Sea Gypsies, they use the Buddhist religion on their identification card but their faith revolves around spiritual of ancestors or animists and angels and is currently estimated to be Buddhist population at 90.59%. There were 2,567 people, 948 households [11], the major income came from trading, employment and fishing averaging less than 5,000 baht per month. BRM community is located in Moo 3 Paklok district, Thalang, Phuket. The village has a very long history of more than 200

Figure 1: Tha Chat Chai Buddhist and Bang Rong Muslim community location.

years. Recent, about 80 % of people are Islamic. The most Muslim emigrated from Arab and Malaysia during the end of the Ayutthaya period (originally of Malay descent) and an overwhelming majority of Muslims are Sunnis. There were 2,312 people, 920 households, most of their income came from fishing and employment averaging about 12,000 baht per month.

The Background to Case Study

Tha Chat Chai Buddhist community

According to TCCB community, as a frontline village of Phuket, home of the Moklen and unique history of Sarasin Bridge Love story has become a popular tourist attraction on Phuket. This village still preserves ancient culture such as the traditional way of life Sea Gypsies from Moklen tribe. The Moklen are indigenous people (seafaring people) or we call Thai Mai (New Thai) living on the west coast of Baan Tha Chat Chai. There are two village, Baan Hin Look Diew village and Baan Laem La village. The areas various type of natural resources such as swamp forest, beaches, coral reef, jellyfish, sea shells, oysters, breeding grounds of sea turtles and sand crabs. They have unique culture and traditions; Buddhism festivals, traditional

animistic beliefs of Moklen. However, the traditional religion of Thai Mai still live with the old belief and traditional. In this case, the youth and child get influence by modern technology on society, the domination of the Thai language and missionary activities, traditional culture and unique religious belief are a constant threat.

In 2004 the villages were strongly affected by the natural disaster, the populations were affected by the tsunami disaster 1000 cases and 312 households, 20-30% of wooden houses were damaged, the height of the tsunami was 5.92 meters [12]. There was damage on coastal ecosystems, coral reefs, impact on marine biodiversity as abundance, species richness. Moreover, aggressive fishing activities from fishing boats outside the village caused damage on the marine habitats as it lead to loss of type of fish and other aquatic species. After the disaster, people received a budget for rehabilitation; rebuilt simple houses, donated fishing equipment and boats.

In 2014, CBE projects were established to provide a livelihood and addition income for local people, and recovery coastal ecosystems and culture heritage. Since then, the community has been actively participated in marine rehabilitation, recovery culture and traditions, such as Moklen dance and music, etc., and engaged in ecotourism and

conservation practice. However, the villagers were only convinced to participate in the meeting only but they could not manage tourism operations by themselves such as tour guide or tour agency, local restaurants, souvenir, homestay etc. However, it is also clear that tourism distributed unevenly in the community, which has had an effect on economic, social, and environment sustainability of tourism [13].

Bang Rong Muslim community

The Bang Rong community is an important historic community in the Mueang Thalang period; multicultural communities have come to trade in 18th Century. After the end of the Myanmar war, Islamic ethnic groups returned to the community and help with the development of the settlements in these areas [14].

In the past, areas were hilly rainforest with various natural resources, abundant mangrove forests, many species of wildlife and marine species such as gibbons, dugongs also white elephant palm (white backed palm) which is a rare tree species and first discovered in the Khao Pratheaw National Park. Local people wellbeing depends on the environment and natural resources.

Unfortunately, uncontrolled and rapid growth in tourism development has led to destruction of natural resources, the community suffered a devastating economic collapse, mangrove tree were mostly destroyed and public areas has been invaded by capitalists. Furthermore, the villagers cut the mangrove trees for charcoal business and fuel wood, shrimp farms managed to destroy most of their ecosystem and mangrove swamps. Since 1993, they have developed their own community by sufficiency economic philosophy is guideline for the operation and established a debt relief fund and savings group for production in 1997. Savings group can help them find a debt relief and buy land from capitalism return to community members for better being. BRM community has established ecotourism in 1999 for community development and help local people especially recovery economic sectors to solve the poverty problem through financing alone.

Moreover, since 2004, this community is one of villages that were affected by the natural disaster [12] and population were affected by the tsunami disaster, 92 cases and 28 household, height of tsunami 1.75 meters [15], the impact of the tsunami had an effect on the coastal ecosystem such as mangroves, seagrass bed, marine tourism attractions, community restaurants and souvenir shops, etc., However, despite these impacts, community leaders and committees had set up a program for the recovery of ecotourism from the big catastrophe. Ecotourism is a tool for sustainable rural community economic recovery and livelihoods recovery of the people after the tsunami disaster. Achievements in sustainability of CBED requires working with multi-institutional.

Aim

The aim of this paper is to assess the implementation of CBE and compare sustainability of ecotourism indicators based on seven dimensions. Based on the comparative analysis we can allow the knowledge sharing and recommendations for implementing the sustainability ecotourism management in future.

Methodology

This article is based on quantitative research, a total 315 respondent participated in this study consists 155 of local people in BRM community and 160 of TCCB community. The questionnaire uses five point of Likert scales. The study use 74 indicators to measure progress toward building a sustainability of CBED in the case study based on residents' perceptions on implementation of sustainable ecotourism management: environment (18 indicators), social (10 indicators), culture heritage (8 indicators), economic (8 indicators), marketing (10 indicators), spirituality and religious traditions (10 indicators) and political (10 indicators). The data were analysed using Microsoft Excel 2013. Descriptive statistics were use the mean score and weighted average values. The weight of the indicator was calculated by using the formula as below:

Indicator weight (w_{ij}) = (Mean score of each indicator/Total indicators mean scores) ×100

To determine sustainability, weight score of indicators within seven relationship aspects are finding by the following equation,

$$y_{ij} = \frac{r_{ij} - 1}{m} w_{ij} \qquad (1)$$

Where y_{ij} is the weighted scores of the j-th indicator in the i-th aspect, r_{ij} is the mean score of the j-th indicator in the i-th aspect, and w_{ij} is the weight of j-th indicator in the i-th aspect, m explains the four intervals of sustainability barometer.

$$y_i = \sum_{j=1}^{k} y_{ij} \qquad (2)$$

Where y_i is the sum of weighted score for the i-th aspect; and k is the number of indicators included in the i-th aspect.

The study used the Barometer of Sustainability to determine gradations of sustainability [16] give a four-point scale which use an interval scale of 1-100, where 1-25% was classified as " unsustainable (bad)", 26-50% was classified as "potentially unsustainable (poor)", 51-75% was classified as "potentially sustainable (good)" and 76-100% was classified as "sustainable (excellent)"

Interval scales denoted the indicator mean score between 1 and 5, where 1.0-2.0 denoted unsustainability, 2.1-3.0 denoted potential unsustainability, 3.1-4.0 denoted potential sustainability and 4.1-5.0 denoted sustainability.

To determine the contribution to sustainability from a relationship aspect, the achievement scores were obtained by the following equation,

$$D_i = \frac{y_i}{w_i} \times 100\% \qquad (3)$$

Where w_i is the sum of weighted, y_i is weighted scores, and D_i is the i-th relationship aspect.

Literature Review

Ecotourism is nature and culture based tourism, requires the lowest possible consumptive use of natural resources and culture heritage as tourist attraction which includes socio-economic benefits to host community and enhances environment conservation [17], preservation of cultural tradition [18]. CBE refers to implementation of ecotourism management by empowerment of community through to engage all stakeholders to implement ecotourism policies based on sustainability development to protect environment and biodiversity conservation [19]. Sustainability of CBED aimed to residents' perception to the actual implementation based on sustainable practices, will also be considered seven dimensions as sustainability. Social sustainability will benefit from tourism. Tourism will create

jobs such as wildlife tour guides, cultural tours and sightseeing with the native people. It also helps with social interactions by letting the local people meet and talk to the tourists from other countries, which helps them learn about other countries as well. Cultural heritage sustainability can also benefit from tourism; originally, it includes both tangible cultural heritage, such as buildings, monuments, work of art and masterpieces of artistic and historical value passed; and intangible cultural heritage, such as folklore, traditions, language and knowledge as an inherited from the past and passed into future generation [20]. Ecotourism providing an opportunity to local people can support sustainable use of culture and heritage sites also revenues generated from culture and heritage sites conservation and maintenance. For example, the local people can teach tourists about their culture and religion. When the tourists visit this they will be able to bring their experience they learned and spread it to their own country thus spreading the word around the world about the culture in Phuket. Acknowledging the main part of cultural heritage, which contribute to the reality reflecting the spiritual and religious practices. Spiritual and religious tradition of sustainability, it can play a role for sustainable community development which indigenous peoples have a spiritual and religious tradition that is rooted in an original community with ascetic ideal of a simple life [21], religious beliefs and teaching on stewardship and harmony support to social sustainability [22] including promoting environmental conservation and habitat protection and supporting community based natural resource management through ecological implications of Buddhist tradition or teaching at the grassroots level by providing monks with training in Buddhism and Ecology [23]. Environmental sustainability can also get help from sustainable ecotourism, which effectively management practices implementation and long-term maintenance of natural resource planning so they are available for the use of future generations. Another way ecotourism has effected the environment is that people are raising concerns on how to make the fisheries, wildlife better. Such as if the people overuse the natural resources such as logging, it would cause problems for the tourism. Ecotourism can have a great impact on the economic sustainability in Phuket both positive and negative. The positive impacts it can have is if the economy around the world is good many people will go on vacations in such places as Phuket and spend more money on different activities such as wildlife tours ,and buy thing that they can only get in Phuket which would put money into the economy of Phuket. The negative effect tourism can have is that if the economy is in a recession many people would not be able to travel thus not spending money in local community. Sustainability marketing extends to support tourism-marketing, stakeholder and public-private partnerships are main important sectors that involved in tourism marketing plan such as regional tourism organizations, hotel, restaurant and travel agencies [24]. Although use of marketing techniques to promote tourism service-products and attractive to diversity of tourists with respect to long term maintenance unique environment while it can make an economic benefit to the community economic and contribute revenue to local people [25]. In order to achieve long term success in community ecotourism development, government should be addressing policies for reducing poverty base on local resident's involvement and participation in decision- making a plan and implementation and benefit sharing accrued from community tourism management [26]. Wearing, Archer and Beeton [27] providing sustainability marketing also need to be enhancing visitor satisfaction and should be promoting the responsibility and protection of environmental services and natural resource. In the context of sustainable ecotourism market, should be develop and manage marketing activities to meet the demand

of eco-tourists market and need to sustainability management of ecotourism destinations [28], should focus on environment, social, cultural and economic sustainability [29]. CBE to achieve successful implementation of ecotourism marketing which needs to consider the tourism marketing mix based on tourist surveys [30]. According to Denman [31], the sustainability of ecotourism products should be addressed quality service, authenticity and attention about visitor safety while respecting the cultural sensitivities and conservation environments [32]. Political sustainability can also effect ecotourism if the government owns much of the land in Phuket but only allow tourist to visit certain areas that would greatly decrease the effect that ecotourism would have on Phuket. Thus the government should not monopolize the ecotourism of Phuket but allow all native groups to market and to profit from the ecotourism of Phuket. The politicians should improve the policy of the seven dimensions below (Figure 2).

This chart shows the sustainability of CBED depends on the seven dimensions. If ecotourism is going to be successful, we need improvements in these areas (Table 1).

Results

Environmental dimensions

In the implementation of CBED in the environmental dimensions, it is appreciate that TCCB community and BRM community are implementation with moderate level compliance. The residents of TCCB community perceived highest mean score on existence of landscape management plan (4.03). Since most of this area is state property land which the government controlled and held a monopoly on the land and natural resources, and enterprises and residents operated under the legal framework of nominally such as minimal number of buildings around nature public areas, height of buildings, golf courses, etc. The residents of BRM community have met the highest mean score on local people of participation in cultural heritage conservation(4.11) among the majority Muslim people had preserved a strong identity in the village due to strong adherence to the traditional way of life with significantly Islamic regulations and law (Sharia law).

Conversely, the residents of TCCB community also perceived lowest mean score on implementation of energy management
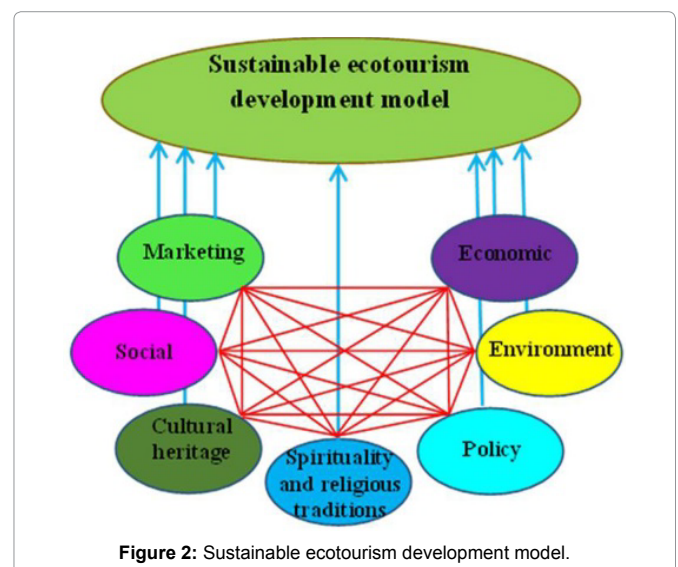

Figure 2: Sustainable ecotourism development model.

Table 1: Shows the mean scores, weight, weighted score and ranking of indicators for sustainability of the community-based ecotourism in the implementation of each dimension accordingly.

Dimensions		Indicator	TCCB community				BRM community				
			Mean Score	Weight	Weighted Score	Rank	Mean Score	Weight	Weighted Score	Rank	
Environment	EN1	Existence of management plans for Convenience of access to tourist attraction and basic tourist facilities	3.82	1.72	1.21	17	3.46	1.36	0.84	9	0.000
	EN2	Quality improvement plan of the roads transportation	2.61	1.18	0.47	5	2.97	1.17	0.58	4	0.001
	EN3	Existence of landscape management plan	4.03	1.82	1.37	18	3.38	1.33	0.79	8	0.000
	EN4	Existence of management plans for geomorphological formations and soils	3.38	1.52	0.91	10	2.54	1.00	0.39	1	0.000
	EN5	Existence of flora biodiversity management plan	2.90	1.31	0.62	8	3.51	1.38	0.87	13	0.000
	EN6	Existence of faunal biodiversity management plan	2.89	1.30	0.61	7	3.31	1.30	0.75	7	0.038
	EN7	Local people participation in land conservation	3.50	1.58	0.99	16	2.94	1.15	0.56	3	0.000
	EN8	Participation in environment rehabilitation	3.40	1.53	0.92	12	3.05	1.20	0.61	5	0.004
	EN9	Participation in culture conservation	3.44	1.55	0.95	15	4.11	1.61	1.26	18	0.000
	EN10	Participation in environment protection	3.40	1.53	0.92	12	3.46	1.36	0.84	9	0.039
	EN11	Tourist participation in ecotourism attraction protection	3.40	1.53	0.92	12	3.47	1.36	0.84	11	0.187
	EN12	Quality of maintaining environment	3.30	1.49	0.86	9	3.69	1.45	0.98	15	0.000
	EN13	Voice quality management	3.38	1.52	0.91	10	3.88	1.52	1.10	17	0.000
	EN14	Solid waste management	2.60	1.17	0.47	4	3.49	1.37	0.85	12	0.000
	EN15	Wastewater management	2.38	1.07	0.37	3	3.66	1.44	0.96	14	0.172
	EN16	Water availability and conservation	2.20	0.99	0.30	2	3.81	1.50	1.05	16	0.320
	EN17	Energy management	1.82	0.82	0.17	1	2.62	1.03	0.42	2	0.039
	EN18	Air pollution management	2.83	1.28	0.58	6	3.19	1.25	0.68	6	0.130
Social	SO1	Safety management for creating community images	2.92	1.32	0.63	7	3.72	1.46	0.99	7	0.000
	SO2	Strictly Islamic spirituality and religious tradition of regulations/ Strictly Buddhism spirituality and religious tradition of regulations management	3.19	1.44	0.79	8	4.48	1.76	1.53	10	0.000
	SO3	Control land use in tourist attraction, Adequate housing	4.45	2.01	1.73	10	2.91	1.14	0.55	1	0.000
	SO4	Existence of program of spiritual and religious activities with youth	2.53	1.14	0.44	4	4.34	1.71	1.43	9	0.001
	SO5	Providing and development knowledge of local people in environment conservation	2.69	1.21	0.51	5	4.21	1.66	1.33	8	0.002
	SO6	Trained and development knowledge of local people in ecotourism management	1.61	0.73	0.11	1	3.67	1.44	0.96	6	0.000
	SO7	Environmental compliance	3.36	1.51	0.89	9	3.31	1.30	0.75	4	0.326
	SO8	Conflict management in tourism	2.26	1.02	0.32	3	3.25	1.28	0.72	3	0.279
	SO9	To capture (keep) levels of environmental consciousness existent	2.69	1.21	0.51	6	3.05	1.20	0.62	2	0.000
	SO10	Implementation of quality infrastructure development	1.94	0.87	0.20	2	3.43	1.35	0.82	5	0.489
Culture Heritage	CU1	Existence of protecting cultural heritage values	3.75	1.69	1.16	4	4.00	1.57	1.18	4	0.000
	CU2	Participation in culture conservation	4.10	1.85	1.43	5	3.91	1.54	1.12	3	0.000
	CU3	Program of recovery fishery way of life /Traditional agriculture	2.84	1.28	0.59	3	4.31	1.69	1.40	6	0.000
	CU4	Existence and Revival program of traditional clothing, music and dance	4.20	1.89	1.52	7	4.18	1.64	1.31	5	0.009
	CU5	Conservation of value and management of artistic archaeological, and heritage buildings	2.06	0.93	0.24	2	3.65	1.43	0.95	2	0.000
	CU6	Awareness of the existence of inherited Buddhist tradition/ Muslim tradition	4.15	1.87	1.47	6	4.43	1.74	1.49	8	0.000
	CU7	Providing and development of local foods and restaurants	2.00	0.90	0.23	1	3.56	1.40	0.90	1	0.023
	CU8	Recovery & Implementation of local traditional rituals and festivals	4.61	2.08	1.87	8	4.34	1.71	1.43	7	0.002
Economic	EC1	Tour operator and tourism activities management	2.14	1.27	0.58	3	1.43	0.56	0.06	1	0.000

Category	Code	Description									
	EC2	Accommodations service	2.64	1.19	0.49	6	1.89	0.74	0.17	3	0.030
	EC3	Restaurant and local product	2.71	1.22	0.52	8	2.55	1.00	0.39	6	0.485
	EC4	Transportation and other service	2.68	1.21	0.51	7	1.87	0.74	0.16	2	0.028
	EC5	Local culture and heritage	2.61	1.18	0.47	5	1.99	0.78	0.19	4	0.000
	EC6	Commercial fishery activity	2.40	1.08	0.38	4	3.14	1.09	0.48	7	0.000
	EC7	Commercial agriculture activity	1.44	0.65	0.07	2	3.31	1.01	0.40	8	0.000
	EC8	Commercial livestock activity	1.26	0.57	0.04	1	2.19	0.86	0.26	5	0.041
Marketing	M1	Implementation of plan for Ecotourism marketing management	4.18	1.88	1.49	9	2.88	1.13	0.53	3	0.000
	M2	Promote CBE management and marketing destinations	3.48	1.57	0.97	7	3.83	1.50	1.06	6	0.274
	M3	Community base spirituality and religious tradition tourism management	1.59	0.72	0.11	2	1.89	0.74	0.17	1	0.007
	M4	Development of Tourist activities and tourism products to impress tourist	3.67	1.65	1.10	8	4.11	1.61	1.26	9	0.133
	M5	Development of local products for sale to tourist	2.09	0.94	0.26	4	4.41	1.73	1.47	10	0.000
	M6	Providing and development knowledge, experience and skills of local people in tourism hospitality operations management	1.73	0.78	0.14	3	3.60	1.41	0.92	4	0.191
	M7	No. of tourist visitation	1.25	0.56	0.04	1	1.94	0.76	0.18	2	0.000
	M8	Preserve the existing value of tourism resources	3.01	1.36	0.68	5	3.72	1.46	1.00	5	0.000
	M9	Stakeholders Coordination Management on tourism	3.28	1.48	0.84	6	3.83	1.51	1.07	7	0.000
	M10	Existence of Tourism- Services management at fair price	4.38	1.98	1.67	10	4.03	1.58	1.20	8	0.077
Spirituality and religious traditions	SP1	Often adopt the your own religious teachings to daily life	2.83	1.28	0.58	2	4.55	1.79	1.59	5	0.000
	SP2	Have opportunities to participate in practices of your own religious	3.18	1.43	0.78	3	4.28	1.68	1.38	4	0.000
	SP3	Participation in your own evangelism and their faith to children	3.47	1.56	0.97	6	4.67	1.84	1.68	6	0.000
	SP4	Supporting spirituality and religious traditional activities to children	3.39	1.53	0.92	4	4.82	1.89	1.81	7	0.000
	SP5	Often to foster care, and conscience protection on your own religious and other.	3.48	1.57	0.97	7	4.83	1.90	1.81	8	0.000
	SP6	Respect the religion and traditional culture of the Buddhism community/ Muslim community	3.63	1.63	1.07	8	4.99	1.96	1.96	10	0.000
	SP7	Obtaining equality and justice and encourage local communities to value and benefit from natural and cultural resource.	1.91	0.86	0.20	1	1.79	0.70	0.14	1	0.442
	SP8	Participate in the preservation and promotion of local traditional culture, historical and religious heritages.	3.68	1.66	1.11	10	4.88	1.92	1.86	9	0.000
	SP9	Compliance with all of low and land use regulations and zone management	3.43	1.54	0.94	5	2.64	1.04	0.42	2	0.000
	SP10	Involved in the care, attention to protecting and rehabilitation the nature resource	3.64	1.64	1.08	9	3.59	1.41	0.91	3	0.229
Policy	PC1	Restoration flora and fauna project	2.28	1.03	0.33	3	2.68	1.05	0.44	2	0.065
	PC2	Management of ecosystem, ecological health and process	2.15	0.97	0.28	2	3.21	1.26	0.70	4	0.023
	PC3	Promote education and public awareness	3.12	1.41	0.75	5	3.28	1.29	0.73	5	0.003
	PC4	Rehabilitation and conservation of local cultural and historical values	4.02	1.81	1.37	9	3.39	1.33	0.80	7	0.000
	PC5	Land use management	4.08	1.84	1.41	10	3.76	1.48	1.02	8	0.378
	PC6	Regularly landscape improvements	3.69	1.66	1.12	7	3.34	1.31	0.77	6	0.361
	PC7	Conservation of biological diversity and ecosystem	2.95	1.33	0.65	4	3.79	1.49	1.04	9	0.453
	PC8	Safety management for local people and tourist	3.59	1.62	1.05	6	1.80	0.71	0.14	1	0.000
	PC9	Existence of policy and planning in religious or spirituality sector for enhancing sustainable ecotourism development	3.71	1.67	1.14	8	4.66	1.83	1.67	10	0.000
	PC10	Promote investment that support local development	1.71	0.77	0.14	1	2.75	1.08	0.47	3	0.139

Based on the description and analysis of questionnaires, the results of total assessment of implementation of sustainable ecotourism management as shown in Table 1.

(1.82). Especially, risks to public water-supply systems related to the deterioration of the drinking water quality in distribution systems and the physical degradation of the energy source in the TCCB community that are of greatest concern with substantial differences compared to the residents of BRM community. The BRM community perceived lowest mean score on existence of management plans for geomorphological formations and soils (2.54). In the decade before the 2014 the Indian Ocean Earthquake and Tsunami disaster, mangrove swamp have been destroyed due to shrimp farms, reclamation and infrastructural development, also the impact of the tsunami disaster that affected the soil fertility of agricultural lands, and washing away people and livelihoods. Besides, post tsunami recovery is much more difficult to implement the plans, thus require appropriate implementations of management plan for improve and protect soil quality, and mangrove forests restoration and rehabilitation program.

Social dimensions

Overall, on comparison of basic descriptive analysis, BRM community have a higher level of compliance. Different to case in the implementation of social dimension, it is seen that the TCCB community have moderate level compliance in this dimension. In the residents of BRM community perceived highest mean score on strictly Islamic spirituality and religious tradition of regulations and management (4.48) regarding to Muslim hold in Islamic spiritual practice and belief. According, the residents of TCCB community perceived highest mean score on implementation of control land use in tourist attraction and adequate housing (4.45).

Conversely, the residents of BRM community also perceived lowest compliance with land use regulations in tourist attraction due to the development of tourism with substantial differences compared to the residents of the TCCB community, although inadequate housing for low-income families as a result of public areas and mangroves encroachment has increased, in case of residents of TCCB community perceived lowest compliance with trained and development knowledge of local people in ecotourism management (1.61). Moreover, lack of indigenous people knowledge for biodiversity conservation and tourism management, which indicated that the community does not always operate for education of indigenous groups.

Cultural heritage dimensions

Based on comparative sequence analysis, TCCB community and BRM community has a higher-level compliance in cultural and traditions dimension. In the residents of TCCB community perceived highest mean score on recovery and implementation of local traditional rituals and festivals (4.61) due to empowering traditional leadership, local citizens and groups such as youth and woman's groups. As for BRM community, a perceived high mean score on awareness of the existence of inherited Muslim traditions (4.43) such as rituals and the traditional Islamic law of inheritance is passed down from generation to generation. The same community, main institutions, together families, parents and older siblings are strongly encouraged and responsible for transmitting culture.

On the contrary, residents of TCCB community perceived lowest mean score of implementation on promote or providing and development of local foods and restaurants (2.00), which this level indicated that much less attention has been given as to who those stakeholders in local foods development.

Economic dimensions

Overall, TCCB community and BRM community has a lower level compliance in economic dimension. According, residents of TCCB community perceived lowest mean score of implementation on commercial livestock activity (1.26) and implementation on commercial agriculture activity (1.44) due to limited land space to develop expansive farming and all livestock management activities. Moreover, most TCCB residents of income from fisheries with substantial differences with BRM residents. Some of indicators difference, mean score of BRM community ecotourism management was 1.43, indicated from the minimum number for participant as travel agencies and local tourist guide, including accommodations service management was 1.86, local culture and heritage management was 1.99, indicated that residents do not pay more attention to operator and ecotourism activities management.

Similarly, with economic benefits from ecotourism low income distribution from ecotourism activities in both communities such as implementation on restaurants and local product management that to measure less of number of handicraft workshops, souvenir shops, stores, local food, and price management in tourist destination.

Marketing dimensions

According to the implementation of marketing dimension, the BRM community has the higher level of compliance, residents of the BRM community perceived the highest mean score of implementation in development of local products for sales to visitors (4.41). Which is greatly different from the TCCB community, while residents of TCCB community perceived highest mean score of existence of Tourism- Services management at fair price, paying a fair price for services, hospitality, travel, etc. (4.38). Conversely, BRM community has the lowest implementation on community base spirituality and religious tradition tourism management, lack of spirituality and religious tradition tourism activities for attractive to the diversity of tourist (1.89)**.** Similarly, residents of the BRM community perceived lowest number of tourist to visit around the community ecotourism destinations, also most of tourists are specific domestic tourist groups. Moreover, the implementation of plan for ecotourism marketing management was moderate level (2.88).

Spirituality and religious traditions dimensions

In the practice of spirituality and religious traditions dimensions, BRM community has the high compliance, residents of BRM community perceived highest mean score of Muslim community with respect to the religion beliefs and traditional culture (4.99) , local community involvement in the preservation and promotion of local traditional culture, historical and religious heritages (4.88), often to foster care, and conscience protection on their own religious and other such as donations, making merits and volunteer, etc. (4.83), supporting spirituality and religious traditional activities for children (4.82), participation in their own evangelism and their faith to children (4.67), often adopt the religious teachings to daily life (4.55), and local people had given away opportunities to participate in practices of religious (4.28) respectively indicates that most Muslim people participation in the practice of local Islamic rule and religious conservatism due to the empowerment of poor and pious and due to strong support among religious conservative groups seeking to develop a greater engagement in sustainable ecotourism of community.

Similarly, residents of TCCB community perceived mean score of participate in the preservation and promotion of local traditional culture, historical and religious heritages has highest (3.68) in this dimensions.

However, there were significant difference between the two communities in spirituality and religious traditions dimensions, TCCB community has moderate compliance in the practice of spirituality and religious traditions dimensions indicates that potential implementation of community based ecotourism management is unsustainable level.

Policy dimensions

In the practice of the policy dimensions, showed that both communities are implementing with a moderate level of compliance, residents of the BRM community perceived highest mean score of existence of policy and planning in religious or spirituality sector for enhancing sustainable ecotourism development (4.66). With difference compared to the residents of TCCB community perceived highest mean score of implementation on land use management (4.08). Due to community leaders and local authorities to promote rehabilitation and conservation of the environment including controlling space usage for public safety and ecosystem management through the implementation of the housing management plan for poor people in the tsunami affected areas in 2004.

Conversely, residents of the BRM community perceived lowest mean score for safety management for local people and tourist in ecotourism destination (1.80), residents of TCC community perceived lowest mean score of promoting investment that support local development (1.71). Due to many issue arising in this community such as conflict problem, lack of educations programs for sustainable development investment partnership (SDIP) and is not given appropriate attention by the authority to support investment in local souvenir shops, local food restaurants, homestays and others services for attractive tourist.

Discussion

Discussion ecotourism development based on seven dimensions

Overall, on comparison of basic descriptive analysis, found that implementation of CBE varied greatly between two communities with respect to their sustainability (Figure 3). In BRM community, to determine the sustainability of CBED base on seven dimensions showed spirituality and religious dimension, culture heritage dimension, social dimension, marketing dimension, policy dimension and environment dimension had sustainable levels. Moreover, Muslim residents perceived highest compliance level in the spirituality and religious dimension indicate that sustainability of Muslim CBEM in this dimension, showed the highest ranking showed the highest achievement percentage were 84.14% (Table 3). For example, Muslim people respect the religion and culture beliefs and traditions including the more local people are paying attention to God or their core religious teaching, beliefs and practices also adapted approaches and tradition that are geared towards environment conservation and often adopt it teachings to daily life. More broadly, sustainability of CBED base on implementation of spirituality and religious aspects was strongly influenced by the involvement of local communities in ecotourism development and support of

the community in environment conservation. IUCN: "religious leaders can play a vital role in environment conservation and they should be equipped with more the knowledge and experience to be forefront of community problem solving and responsible for the implementation of safeguarding the natural environment: improving air and water quality, and land protection, improving ecosystems functions; aquaculture, agriculture and more [33]. Similarly, in TCCB community showed culture and heritage dimension, spirituality and religious traditions dimension, policy dimension, marketing dimension, and environment dimension had sustainable level. Aspects of culture and heritage can play an important role in sustainable economic development, main generators of employment and fundamental factor for helpful to the community's image building and the traditional cultural attractions as source of ecotourism and so governments should be made cultural and traditions development one of their policies priorities [34]. Conversely, social aspects showed unsustainable level, and economic aspects showed poorest sustainability (Tables 2 and 3).

Conclusion

In this study, despite similar in TCCB and BRM communities exist at the examples of CBEM in Phuket province, the common attributes of implementing CBE in these two communities were different contexts, there are significant issue of social, marketing and spirituality and religious traditions. Interestingly, the conclusions to ensure sustainability of CBED in TCCB community, local community must be to develop and implemented by the community itself. Strictly religious rules and regulations of religious traditions should be established to prohibit illegal communities from teaching Buddhism (Dhumma) how to make people comprehend and show the path to enlightened and the acceptance are naturally through strongly believes that social conflict can be reduced thus bring goodness to mankind and the conservation of natural environment by practicing good deeds [35]. Gumo [36] describes that spirituality and religious practice and believe based on individual values that can support environment protect and conservation such as religiously motivated conduct are safeguarded through the use of religious lows and taboos can help utilize the natural environment resources. Thus, appreciation for good practices and implementation in CBE it can be a way of achieving sustainable community development [37].
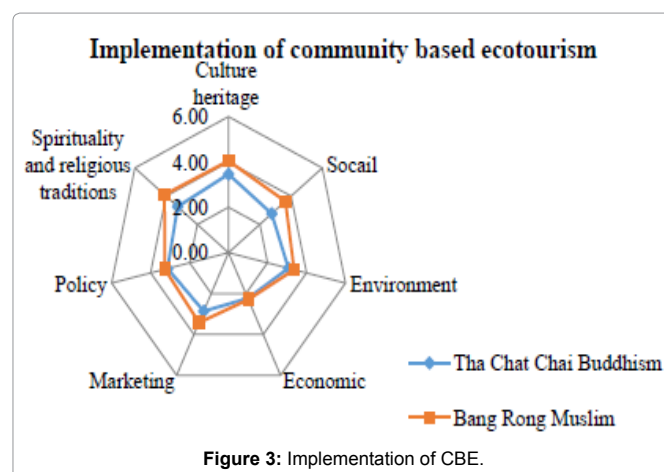

Figure 3: Implementation of CBE.

Table 2: Sustainability achievement of TCCB Community in inter-relationship aspects.

Dimension	Weight(Wi)	Weighted Scores(Yi)	Achievement Percentage (%)	Interpretation
Environment	24.93	13.55	54.36	Sustainable
Social	12.46	6.14	49.28	Unsustainable
Cultural Heritage	12.49	8.52	68.17	Sustainable
Economic	8.37	3.06	36.52	Unsustainable
Marketing	12.92	7.31	56.55	Sustainable
Spirituality and religious traditions	14.71	8.61	58.55	Sustainable
Policy	14.11	8.22	58.25	Sustainable
Total	**100.00**	**55.41**	**55.41**	

Table 3: Sustainability achievement of BRM Community in inter-relationship aspects.

Dimension	Weight(Wi)	Weighted Scores(Yi)	Achievement Percentage (%)	Interpretation
Environment	23.78	14.34	60.30	Sustainable
Social	14.29	9.69	67.79	Sustainable
Cultural Heritage	12.73	9.77	76.78	Sustainable
Economic	6.78	2.10	30.99	Unsustainable
Marketing	13.46	8.85	65.79	Sustainable
Spirituality and religious traditions	16.12	13.57	84.14	Sustainable
Policy	12.84	7.79	60.67	Sustainable
Total	**100.00**	**66.11**		

Recommendations

In order for best practices and ensure a high level of implementation of CBED it should be involvement of local residents in development ecotourism initiatives toward sustainability, as recommendation bellows:

Improving high-level implementation in economic dimensions, to achieve long-term livelihoods and economic recovery of the both communities as a sustainable local economy.

The TTCB community should be development-marketing strategy, implementing marketing practices to support the sustainable ecotourism needs. The lowest mean score of the indicator in marketing dimension "number of tourists visitation, community base spirituality and religious tradition tourism management, providing and development knowledge, experience and skills of local people in tourism hospitality operations management, development of local products for sale to tourist". Strategies marketing, promotion, collaborative organization can improve community productivity and support local small businesses in achieving their own goals in the process. In order to sharing of benefits to grass roots, public-private partnerships are main important proactively involvement in ecotourism, the recommendations should be incorporated into marketing plan.

In TTCB community, community leaders and religious leaders or monks should be supports activities involving indigenous children, youth and women would need to be consider the spiritual and religious beliefs and practices in order to preserve their traditional indigenous culture and environment protect.

Acknowledgements

Appendix

Description of each dimension weights for successful sustainability implementation aspects.

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