

Community Development in Ecotourism Attractions based on Biodiversity of Bang Pu Community, Pattani Province, Thailand

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Abstract

It is obvious that the future of the tourism industry in Thailand and other countries worldwide is likely to be focused on sustainability, particularly ecotourism. The objectives of this research were to study and analyse the potential of tourism resources based on biodiversity in order to examine the capacity of the community and quality standard evaluation of the ecotourism of the Bang Pu community. To investigate the behaviour and demands of Thai eco-tourists in order to propose the guidelines for the development and upgrade of ecotourism in the Bang Pu community. The research applied a mixed methods approach, comprising 385 samples and 50 key informants. Research tools included the questionnaire, interview form, quality standard evaluation of ecotourism attractions, the computer program for social research, content analysis, and descriptive research method. Research results indicated remarkable resources involving 32 types of natural resources, 11 cultures, and 13 activities. In terms of the quality standard evaluation of the ecotourism attractions in the Bang Pu community, After the development, the quality evaluation result was at an excellent level of 77 points. Further, the results of the study of the tourism behaviour of 385 tourists showed that most were interested in education about nature (20.78%). In addition, the study results of the demands for traveling of the sample group indicated that most of them agreed that the accommodation or hotels were convenient, comfortable, and safe, with the average opinion rate at 4.50. The qualitative and quantitative research results were shared by the researcher with the community to propose the development guidelines based on the participation of the community. Consequently, 29 guidelines

for developing and upgrading ecotourism in Bang Pu community, Pattani Province, towards the sustainable development goals were formulated under the English term “ECO Bangpu Model”.

Keywords: Community Development; Ecotourism; Bang Pu Community; Pattani Province

Introduction

Tourism is a key industry that has had the swift expansion. The World Tourism Organization (UNWTO) has predicted that the number of international tourists will reach 1.8 billion by 2030. The targeted destination region of many tourists is East Asia, Asia–Pacific, and Southeast Asia. It is estimated that Asia–Pacific will have 416 million tourists or a quarter of all global tourists (Tourism Authority of Thailand, 2018) One of the countries that is a gem of tourism is Thailand, which is located in the central area of Southeast Asia. Thailand is a country with plentiful natural resources and tourism treasures. Each region has its own natural tourist sites, such as mountains, beaches, etc. Moreover, Thailand is the tourist hub of the region of Southeast Asia due to the advantageous location, which is in the centre of ASEAN; As a result, it is urgent to adjust the national tourism policy and revise the strategies to attract tourists. The focus on quantity tourism by increasing the tourist numbers should be switched to the quality tourism, such as Green Tourism, which is a type of ecotourism that wisely and worthily utilises the natural resources. Consequently, natural resources conservation and environmental sustainability are increased. Further, the concept promotes the tourism to become sustainable (Thailand Development Research Institute, 2019). It is the environmental–friendly tourism aims to completely satisfies the travellers, which suits the current global circumstances. The researcher reviewed the relevant international articles and studies related to ecotourism development, as well as in Thailand in different contexts of areas. It was found that one region in Thailand has the complete ecosystem that is suitable for developing and upgrading to the key ecotourism for learning. Moreover, no research has studied this region in terms of the development and upgrade to ecotourism. For this reason, the researcher realised the opportunity of Bang Pu Community, Pattani Province, Thailand. The general condition is plentiful with the mangroves throughout the area, which facilitates the local fishing profession and natural tourist attractions, and ecotourism management. Tourist sites include the mangroves forest, which can be developed to provide many tourist activities.

The researcher truly hopes that this research will contribute to the sustainable development plan of Thailand. Moreover, the stakeholders from the government sector, local entrepreneurs and people will gain the benefits from the development and upgrade of ecotourism based on the biodiversity in Bang Pu Community, Pattani Province towards the SDGs, which are classified into various areas to promote the ecotourism development founded on the cultural identity and natural resources diversity, as well as the related government authorities involved with tourism in Bang Pu Community, who can use it as a tool to attract the tourists to visit and to enhance the potential in tourism business competitiveness for the benefits of the community, entrepreneurs, and owners of tourist attractions to recognise their own strengths, weaknesses, opportunities, and threats. Further, the development guidelines can be applied to develop the management system, promote the marketing and improve tourist attractions. Additionally, the tourists will be provided with service in correspondence with their demands and have a chance to learn about ecotourism from their travels, as well as receive the value of their travels.

Research Objectives

1. To study and analyse the potential of tourism resources based on biodiversity in Bang Pu Community, Pattani Province.
2. To study the capacity of community and quality evaluation of ecotourism attractions in Bang Pu Community, Pattani Province.
3. To investigate the behaviour and demands of Thai eco-tourists.
4. To propose the guidelines for developing and upgrading the ecotourism in Bang Pu Community towards the sustainable development goals (SDGs).

Literature Review

1. Tourism Theory – Goeldner and Richie (2006) explained that tourism is the travel from one's regular residence to other places temporarily. It is a voluntary trip for any purpose but not for a professional purpose or earning income. This is in line with Khongprasert (2008), who clarified that tourism is a trip from one's normal habitation to other places temporarily with willingness in order to change the environment or to carry out an activity that is not intended for a profession or dwelling. Moreover, McIntosh, Goeldner and Ritchie (1995) explained that tourism is the result of circumstances as well as the correlation of interaction between the tourists and service businesses related to the activities that satisfy the tourists or visitors.

2. Ecotourism Theory – The World Tourism Organization (WTO) (2002) proposed the concept of ecotourism, which states that 1) it is the tourism concerned with nature, 2) it presents the knowledge and communication, 3) it is the tourism activity of a small group, 4) it minimizes the impacts on nature and awards the community, and 5) it raises the awareness of conservation. Apart from these five concepts, the researcher examined the concept of Worakawin, Nuananan and Senawong (2003), who stated that ecotourism is the tourism pattern that has the process, objectives, steps, and systematic management. The fundamental principles include sustainability, natural and cultural components, knowledge and communication, participation or local public benefits, and satisfaction of the users and consumers. However, the United Nations Environment Programme (UNEP) and Ecotourism Society gave the definition of “ecotourism” as the travel that can include the tourism activities in a plentiful area with resources, in which such activities should not disturb the natural conditions, with a focus on education, having satisfaction with the scenery, plants and animals, and understanding of the culture and natural environmental background without interfering with the ecosystem. Meanwhile, it creates the economic opportunities, leading to the conservation in the localised area. The researcher adapted these concepts to the ecotourism based on the biodiversity in Bang Pu Community, Pattani Province in terms of the utilisation management of tourism attractions and the behaviour and demands of tourists and communities.

3. Sustainable Development Concept – The researcher reviewed the concepts about sustainable tourism development and concluded that it involves the tourism development aimed at economic, social, cultural, and environmental purposes simultaneously with the participation of the community in order to fairly gain the economic benefits from the tourism. Besides this, the researcher studied the concept presented by Chetthamas and Aimphan (1996), who stated that ecotourism is the path to sustainable tourism, more or less depending on the knowledge and understanding of the related persons. Moreover, they additionally explained the ecotourism components that comprise the conscious or ecologically sensitive of all relevant parties, i.e. tourism entrepreneurs and local communities, low negative impacts on the environment or tourism resources that are the opposite to the mass tourism, the educational publications for the tourists, and the local generation of benefits to be distributed to everyone, not only the capitalists or specific groups of people. Furthermore, the researcher reviewed the information of the United Nations Organization (UN) (2015) regarding the objectives of development based on the dimensions of economic, social, and environmental development to correlate, which are referred to as the Sustainable Development Goals (SDGs) that

are being used as the development direction for 15 years, from September 2015 to August 2030, which comprise 17 goals. Moreover, the researcher applied them to navigate this research.

Research Methodology

This research employed a mixed methods research combining quantitative and qualitative research approaches.

Population and key informants

1) The Population and sample group was 385 Thai eco-tourists who travelled to ecotourism destinations in Pattani Province. Cochran's factor (1963) at the reliability level of 95%, with error less than 5% was used. Simple random sampling was applied to select the sample.

2) Fifty key informants were selected using the purposive selection method from the account list, and snowball selection was applied to select the key informants who had the qualifications. The approach of Nastasi and Schensul (2005) was used to determine the number of key informants. Miles and Huberman (1994) determined the in-depth interviews with 5 to 30 informants and a discussion group with 5 to 10 informants. Furthermore, the data sufficiency principle of Onwuegbuzie and Leech (2007) and Flick (1998), and the data saturation principle were applied. The researcher used the repeated data acquired from more than five informants as the criteria. The repeated interviews did not gain any new discoveries.

Research Tools

Questionnaire – This was used to examine the behaviour and demands of the eco-tourists, and the reliability was found to be 0.87. The Semi-structured interview was applied to the interviews about the community context, tourism resources, strengths, weaknesses, opportunities, and threats, as well as the demands of communities for tourism management. Lastly, the quality evaluation of ecotourism attractions created by the Ministry of Tourism and Sports (2016) was used for the evaluation of the ecotourism attractions in Bang Pu Community, Pattani Province.

Data Collection

The source of the primary data collection included the questionnaire, survey, interviews, participant observation, and focus group from October 2018 to September 2019. The sources of the secondary data included the documents and information about ecotourism, the articles published in the international journals located on the Scopus database, and the published researches on TCI 1 and TCI 2.

Data Validation

The researcher allowed the key informants to check the data themselves (member checks). The interviewer read the feedback on the wording or the aspects given by the key informants for clarity, and asked for the additional opinion if they had more perspectives to add at the end of each topic interview to ensure that the recorded data was consistent with that provided by the key informants. After the agreement and confirmation that the data was accurate, it was considered the reliable data. Any incomplete data could be supplemented by the informant.

Data Analysis

The quantitative data was analysed using the computer program for social analysis in order to determine the percentage, mean, frequency, and standard deviation (SD), t-test, independent-sample approach, one-way analysis of variance (ANOVA), and pair comparison. The qualitative data was analysed by applying the content analysis approach, synthesized with the concept of Colaizzi (1978), and validated with the triangulation approach, which was the concept of Cohen and Manion (1994), and Miles and Huberman (1994), before being summarised with the descriptive approach.

Research Results

Objective 1 The results showed that Research and analysis results on the potential of tourism resources based on the diversity in Bang Pu Community, Pattani Province.

1. Research results on the tourism resources based on biodiversity in Bang Pu Community, Pattani Province

1.1 Natural resources were classified into 1) 14 species of plants, i.e. white bean and black bean, *Xylocarpus moluccensis*, *Excoecaria agallocha*, Mangrove, Butterfly pole, *Acanthus ebracteatus* Wall. Indian Marsh Fleabane, *Avicennia alba* Blume, Portia Tree, Queen sago, *Sesuvium portulacastrum* (L.) L., *Nypa* palm, *Sonneratia caseolaris*, and *Sonneratia ovate*, 2) seven species of aquatic animals, i.e. Scat, Flathead mullet, Striped catfish, Snapper, Ray, *Scylla serrate*, and Hard clam, and 3) 11 species of birds, i.e. Egret, White-breasted waterhen, Cattle egret, Little egret, *Ardeola grayii*, Great egret, Open-billed stork, Tree kingfishers, Brahminy Kite, and Duck.

1.2 Cultural resources include the southern Muslim ancient house, bamboo striped-wall house, wood carving, batik, Hukkom Muslimin ancient Mosque and Attaawu Mosque, which represent the Middle Eastern culture, Dikir Hulu Cila, Madu Khatong dessert, ubi bae pae dessert, *Gracilaria fisheri* spicy salad, etc.

1.3 Activities resources include hard clam collecting, boat sightseeing in the mangrove forest to study the coastal ecosystem, learning about the local fishermen's lifestyle, boat sightseeing in Pattani Bay, how to make *Gracilaria fisheri*, black crab natural farming, foot massage with mangrove roots, recreational activities at the bamboo court under the mangrove shade, ancient forest sightseeing, cage fish farming activities, traditional dishes cooking, sailing in a fishing boat (at night), cycling in the community, etc.

2. Analysis results of the potential of tourism resources based on biodiversity in Bang Pu Community, Pattani Province as shown in Table 1

Table 1 shows Analysis results of SWOT in Bang Pu Community, Pattani Province

Strengths	<ol style="list-style-type: none"> 1. There are the activities that can be developed as the national ecotourism attractions, such as sightseeing by boat in the mangrove forest, coastal ecosystem learning, local fisherman lifestyle learning, and black crab natural farming. 2. There are the prominent plants suitable for natural learning and the nature trails, such as Sea holly, <i>Avicennia alba</i>, <i>Sonneratia caseolaris</i>, Indian Marsh Fleabane, and <i>Rhizophora apiculata</i>. Blume. 3. There are the aquatic animals suitable for natural learning at Bang Pu, such as Scat, Flathead mullet, Striped sea catfish, Ray, etc. 4. There is the birdlife that is suitable for nature studies at Koh Nok, such as egret, cormorant, Openbill stork, kingfisher, Brahminy kite, etc. 5. People are kind and friendly hosts to the tourists. 6. The traditional culture and ways of life of fishermen and the Muslim community are maintained. 7. There is the community uniqueness, i.e. Dikir Hulu Cila (folk of Malay Muslim province), Madu Khatong dessert, ubi bae pae dessert, etc.
Weaknesses	<ol style="list-style-type: none"> 1. Some attractions have deteriorated without reconstruction, such as the breakpoint tourists and debarkation point. 2. Some attractions are located at in the national park area. 3. The boats are the fishing boats which are old and lack physical maintenance. 4. There are no signs for communication or maps at the sites. 5. Lack of a systematic and environmental-friendly waste disposal system.
Opportunities	<ol style="list-style-type: none"> 1. Global tourism trends have changed to ecotourism. 2. The government policy promotes the income generation in the community and environmental conservation to support ecotourism. 3. Authorities, organisations and educational institutions in the three southern border provinces highlight the study visits among the three provinces. 4. The community members support and promote tourism, culture, and the local schools. 5. There are the tourism networks formed by the communities in the south for community tourism. 6. New technologies are used to efficiently publicise the tourist attractions in the community, such as Facebook and YouTube.
Threats	<ol style="list-style-type: none"> 1. The support from the government is not continuous and solid. 2. The development budget is not consistent. 3. The salary to work in a company or factory, or in Malaysia encourages the teenagers in the community to work in other regions and not carry on the local wisdom. 4. The tourist attractions are located in the three southern border provinces, where there are situations of unrest, and the tourists are afraid to visit.

Objective 2. The results showed that research on the community demands and quality evaluation of ecotourism attractions based on biodiversity in Bang Pu Community, Pattani Province

2.1 Research results on the demands of community and entrepreneurs for ecotourism in Bang Pu Community, Pattani Province

From the interviews with the entrepreneurs who receive the benefits from the local tourism, it was found that they would like to have the ecotourism development in Bang Pu Community, Pattani Province as it would promote the community to the tourists from the three southern border provinces and other regions. As a result, the community earns money from tourism while the fishermen have the extra income by using their boats to transport the tourists. People with vacant houses have turned them into homestays, restaurants and shops where the tourist visit. Importantly, the unemployed women's group earn income from making souvenirs, snacks, and lunch packs for the study visit groups, as Interviewee 1 said:

“In the past, we stayed home and had no income, and the husbands earned the money from fishing. At present, we cook for the tourists using the traditional recipes inherited from our ancestors. We're very proud.” This was in line with Interviewee 2, who stated that, “I've sold the traditional dessert to the local people for decades. Once the tourists started coming in, they have tried Khadong and loved it. I'm very glad and proud of my local food.”

The entrepreneurs who have an interest in tourism also provided the suggestions for tourism management and safety as they are close to the tourists and gained the feedback from them. Thus, they would like to suggest the community tourism management committee to set the clear guidelines for the improvement of people's lives and the safety of properties. They have frequently heard from the tourists that they were afraid before travelling here, so the entrepreneurs suggested that an entrepreneur network should be established and participate in the community surveillance when tourists stay in the community. Moreover, the committee should develop the waste segregation system by coordinating with the Bang Pu Community administrative organisation (SAO) to provide the bins, whereas the community should announce the rules for the homestay entrepreneurs who are the members of the community network to install the wastewater treatment systems before releasing it into the rivers, canals and the Pattani sea in order to create the sustainable ecotourism attractions.

Regarding the learning centre reflecting the Bang Pu community's way of life, the entrepreneurs who have an interest suggested that it should be more interesting by developing three learning stations in Bang Pu including 1) Bang Pu Plants Station, 2) Bang Pu Aquatic Animals Station, and 3) Birdlife Education at Bang Pu. Moreover, there should be a cycling route in the community, and the communication signs should be installed at the learning stations to make them

more interesting. Another point was the potential development of accessibility. Currently, the road access to the community is convenient and appropriate for small and large vehicles. However, there is no public transport to travel to Bang Pu community. Thus, it is an obstacle to the tourists who are travelling on their own. However, they are able to contact the community to pick them up at the public vehicle station or Hat Yai Airport, or rent a van from the nearby city of Hat Yai. Additionally, Interviewee 4 provided the interesting comment that:

“Bang Pu is a Muslim community in which the products and souvenirs should be developed to contain more local Muslim identity and high quality, as well as be clean and fresh.”

The entrepreneurs who have an interest in local tourism also suggested improvement of the cleanliness of packaged and fresh foods. Foods and drinks should represent the local identity, and the local products should be used as the ingredients in order to reduce the purchasing of raw materials from the other sources outside the community. In the future, the company would like to initiate the backyard vegetables project and place emphasis on the participation of the people to grow vegetables that could be used as the cooking ingredients, as well as the use of the seafood to cook rather than beef because some tourists do not consume beef.

2.2 Research results of the potential of ecotourism attractions in Bang Pu Community, Pattani Province

The results of the quality evaluation of ecotourism attractions in Bang Pu Community, Pattani Province showed the potential of ecotourism attractions acquired from the ecotourism quality evaluation form (Department of Tourism, Ministry of Tourism and Sports, 2016) completed by three experts in tourism. The evaluation was conducted twice. The evaluation results before the development process based on the participation of Bang Pu Community, Pattani Province (October, 2018) showed that the overall quality standard of Bang Pu Community, Pattani Province was at a satisfactory level, with 62 points or 62% , and the symbol was ★★ ★. After the development process based on the participant development approach within 10 months (during October 2018– August 2019), the overall quality standard was at a higher level, with 77 points or 77% , and the symbol was ★★ ★★ .

Quality Evaluation Results of Ecotourism Attractions at Bang Pu Community, Pattani Province	Before (score A*B)	After (score A*B)
1) Potential of ecotourism		
1.1 Tourism attractiveness and natural sources of learning	8	8
1.2 Natural resources fertility	8	8
1.3 Connection between the local cultures and natural resources	8	10
1.4 Safety of natural resources for tourism	4	4
<i>Total score for no. 1 (40 points)</i>	<i>28</i>	<i>30</i>
2) Potential of area utilisation for sustainability		
2.1 Management of tourist attractions utilisation	1	4
2.2 Management of tourist services	3	4
2.3 Management of tourism activities	3	5
2.4 Management of follow-up and evaluation of the change of area results from tourism	1	3
<i>Total score for no. 2 (20 points)</i>	<i>8</i>	<i>16</i>
3) Management of providing knowledge and raising awareness		
3.1 There is a service centre to provide the information and facilities for the tourists.	3	4
3.2 Knowledge about saving energy and effective waste management to the tourists is provided.	2	2
3.3 Knowledge about the value and conservation of natural resources is provided to the tour guides and surrounding communities.	3	4
3.4 There are the knowledgeable staff who are experts in ecosystems and conservation to provide service to the tourists, entrepreneurs and communities.	2	3
<i>Total score for no. 3 (20 points)</i>	<i>10</i>	<i>13</i>
4) Participation of community in tourism activities		
4.1 The local community takes part in tourism management.	8	8
4.2 The community earns income from tourism.	8	10
<i>Total score for no. 4 (20 points)</i>	<i>16</i>	<i>18</i>
Total score (100 points)	62	77

Fig.1 shows Quality Evaluation Results of Ecotourism Attractions at Bang Pu Community, Pattani Province

Objective 3 Research results of the behaviour and demands of Thai eco-tourists towards the ecotourism management

3.1 Behaviour of eco-tourists

From the survey of 385 tourists, it was found that 225 samples were female (58.44%) and 160 samples were male (41.56%). A total of 196 samples from 2018 were 21 – 38 years old tourists (Gen Y) (50.91%), followed by 111 tourists aged 39 – 53 years old (Gen X) (28.83%), 62 tourists aged under 20 years old (Gen Z) (4.16%), and 16 tourists aged over 54 years old (Gen B).

Regarding the tourism behaviour, it was found from the 385 samples that most of them travelled with their family (36.62%) with the aim of relaxation (70.61%). In terms of the eco-tourists, it was found that most are interested in activities for learning about nature (20.78%), followed by trekking (20.00%) and boat sightseeing (15.32%).

3.2 Analysis results of the relationship between the types of activities the tourists are interested in the most during the ecotourism and the demand for travel of Thai eco-tourists

The comparison results showed that the first three average opinion scores of the tourists who love trekking were that the local people are friendly and welcome the tourists (4.62), the steps or the channels to receive the services are simple and easy to follow (4.56), and the expense of buying the products is appropriate for the quality of the products and services (4.55).

The first three average opinion scores of the tourists who love cycling were to travel to the convenient region/tourist attractions (4.43), the local people are friendly and welcome the tourists (4.36), and the steps or the channels to receive the services are simple and easy to follow (4.36).

The first three average opinion scores of the tourists who love sightseeing at the attractions with a peaceful atmosphere were the steps or the channels to receive the services are simple and easy to follow (4.66), the convenient and safe accommodation and hotels (4.57), and the relevant laws and regulations related to tourism are appropriate (4.54).

The first three average opinion scores of the tourists who love taking the nature photos and recording videos of the natural scenes were the steps or the channels to receive the services are simple and easy to follow (4.66), the expense of buying the products is appropriate for the quality of the products and services (4.65), and the local people are friendly and welcome the tourists (4.65). However, there was only one tourist who loves camping, so the data was inapplicable for comparison.

The first three average opinion scores of the tourists who love eating for relaxation were the convenient and safe accommodation and hotels (4.80), the steps or the channels to receive the services are simple and easy to follow (4.77), and the expense of buying the products is appropriate for the quality of the products and services (4.74).

The first three average opinion scores of the tourists who love boat sightseeing were it is easy to travel from the accommodation location to the tourist attractions and public transport (4.61), the convenient and safe accommodation and hotels (4.59), and the expense of buying the products is appropriate for the quality of the products and services (4.54).

The first three average opinion scores of the tourists who love the natural trails were to learn and experience the ecosystem at the tourist attractions (4.48), being relaxed at the energy-saving place without disturbance of nature, or where the natural materials are used for construction (4.45), and travel to the place that has many accessible channels and connection to other routes for the convenient travel (4.43).

The first three average opinion scores of the tourists who love bird-watching were to learn about and experience the ecosystem at the tourist attractions (4.13), to learn about the lifestyles or cultures that are different from their region (4.04), and the convenient and safe accommodation and hotels (4.00).

In addition, one-way ANOVA analysis to determine the relationship between the types of activities the tourists were most interested in during the ecotourism travel and the demand for travel in the aspect of “Travel to the area with diverse tourism attractions, such as history, traditions and cultures”, “Learn about the lifestyle or cultures that are different from your region” and “Learn about and experience the ecosystem at the tourist attractions” revealed that the samples who had different interests in the types of ecotourism activity had no statistical difference in the demand for travel. The F-test was 1.920, 1.242, and 1.403, respectively, and the Sig. was 0.056, 0.273, and 0.194, respectively.

However, in the aspect of “fame or souvenirs, and historical and traditional tourist attractions”, “travel to the area with diverse tourism attractions, such as history, traditions and cultures”, “Travel to the convenient region/tourist attractions”, “travel to the place that has many accessible channels and connection to other routes for the convenient travel”, “the local people are friendly and welcome the tourists”, “the convenient and safe accommodation and hotels”, “being relaxed at the energy-saving place without no disturbance of the nature, or where the natural materials are used for construction”, “it is easy to travel from the accommodation location to the tourist attractions and public transport”, “the expense of buying the products is appropriate for the quality of the products and services”, “the steps or the channels to receive the services that are simple and easy to follow”, and “the relevant laws and regulations related to tourism are appropriate”, it was found that the demand for travel was different based on the types of activities the tourists are interested in the most. The F-test was 2.287, 3.001, 3.573, 2.247, 3.223, 3.162, 4.430, 3.347, 4.216, 5.402, and 2.123, respectively, and the Sig. was 0.021, 0.003, 0.001, 0.024, 0.001, 0.002, 0.000, 0.001, 0.000, 0.000, 0.000, and 0.033, respectively, as shown in Table 2.

Table 2 Analysis of the relationship between the types of activity the tourists are interested in during their ecotourism travel and the demand for travel in terms of tourism activities

Desire to Travel	Types of activity of interest to the tourists during their ecotourism									Statistical Test	
	1	2	3	4	5	6	7	8	9	F-test	p-value
1. Travel to the sites that have the local identity, such as history, cultures and traditions.	4.403	3.857	4.196	4.250	5.000	4.429	4.203	4.188	3.913	1.920	0.056
2. Learn about the lifestyles or cultures that are different from your region.	4.429	4.214	4.268	4.400	5.000	4.400	4.203	4.375	4.043	1.242	0.273
3. Fame or souvenirs, and historical and traditional tourist attractions.	4.273	3.857	4.054	4.200	5.000	4.543	4.136	4.038	3.870	2.287	0.021**
4. Travel to the areas with diverse tourism attractions, such as history, traditions and cultures.	4.494	3.929	4.232	4.350	5.000	4.543	4.288	4.150	3.870	3.001	0.003**
5. Travel to the convenient regions/tourist attractions.	4.429	4.429	4.339	4.525	5.000	4.686	4.339	4.313	3.739	3.573	0.001**
6. Travel to the place that has many accessible channels and connections to other routes for the convenient travel.	4.506	4.286	4.429	4.500	5.000	4.657	4.407	4.425	3.957	2.247	0.024**
7. The local people are friendly and welcome the tourists	4.623	4.357	4.429	4.650	5.000	4.486	4.492	4.375	3.913	3.223	0.001**
8. The convenient and safe accommodation and hotels.	4.506	4.286	4.571	4.600	5.000	4.800	4.593	4.375	4.000	3.162	0.002**
9. Being relaxed at the energy-saving place without disturbance of nature, or where the natural materials are used for construction.	4.468	4.357	4.500	4.525	5.000	4.629	4.542	4.450	3.609	4.430	0.000**
10. It is easy to travel from the accommodation location to the tourist attractions and public transport.	4.442	4.286	4.464	4.525	5.000	4.629	4.610	4.413	3.783	3.347	0.001**
11. The expense of buying the products is appropriate for the quality of the products and services.	4.545	4.000	4.500	4.650	5.000	4.743	4.542	4.288	3.957	4.216	0.000**
12. Simple steps or the channels to receive the services that are easy to follow.	4.558	4.357	4.661	4.675	5.000	4.771	4.475	4.263	3.957	5.402	0.000**
13. Relevant laws and regulations to tourism are appropriate.	4.519	4.357	4.536	4.550	5.000	4.543	4.397	4.363	4.000	2.123	0.033**
14. Learn and experience the ecosystem at the tourist attractions.	4.481	4.143	4.446	4.475	5.000	4.571	4.373	4.475	4.130	1.403	0.194

Remark: 1 = Trekking, 2 = Cycling along the natural trail, 3 = Sightseeing at the peaceful atmosphere, 4 = Photo-taking of the nature, video recording of natural scenes, 5 = Camping, 6 = Eating, 7 = Boat sightseeing, 8 = Natural trail, and 9 = Bird-watching.

Remark: **refers to a statistical significance with the reliability of 95%.

Objective 4. Guidelines for the development and upgrade of the ecotourism in Bang Pu Community, Pattani Province towards SDGs

The researcher analysed and synthesized the qualitative and quantitative results and summarised the results based on the research objectives. Then, the results were shared with the stakeholders in the community in order to develop the guidelines for the development and upgrade of the ecosystem based on the biodiversity in Bang Pu Community, Pattani Province towards the SDGs via the participation process founded on the focus group. It was the process to exchange the opinions of the researcher, government authorities and stakeholders in Bang Pu Community, Pattani Province. Thus, the researcher would like to propose 29 guidelines that are in accordance with an English term “ECO BANG PU Model” towards the sustainable development goals (SDGs), which includes E: Ecotourism, C: Carrying Capacity, O: Organic Products, B: Business, A: Accessibility and Accommodation, N: New Normal, G: Good Governance, P: Participation, U: Universal Design), as shown in Table 6.

Table 3 Guidelines for developing and upgrading ecotourism in Bang Pu Community, Pattani Province towards SDGs

Guideline	Terms	Guidelines for developing and upgrading ecotourism in Bang Pu Community, Pattani Province towards SDGs
E	Ecotourism (Goals 1 and 8)	<p>1) Develop three tourism routes for learning about and experiencing the ecosystem in the tourist attractions to support the demands of ecotourism, i.e. boat sightseeing and herbs tasting, bird-watching and sunset at Bang Pu Bay, and trekking and studying herbs.</p> <p>2) The new ecotourism attraction in the area of plentiful forest that has not been surveyed, such as the ancient forest, should have the staff or expert in the survey and development available.</p> <p>3) Develop the tourism activities that the tourists can participate in. It might be the full participation or partial participation depending on the skills and available time of the tourists. The focus is on the environmental conservation activities.</p>
C	Carrying Capacity (Goals 14 and 15)	<p>1) Limit the numbers of tourists that go boat sightseeing by considering the potential and ecosystem of the attractions, especially the sensitive tourist attractions, such as determining the limit of tourist numbers, time setting, and the alternatives to restore the tourist attractions.</p> <p>2) The environmental conditions of the tourist attractions should be standardised. Wastewater should be treated before being released into the sea. Waste and garbage, as well as the noise should be controlled to avoid the disturbance of animals during boat sightseeing.</p>

		3) Set the income ratio earned from the tourist activities to be spent on the maintenance, restoration, and improvement of the tourist attractions environment appropriately.
O	Organic Products (Goal 8)	<p>1) Develop the environmental–friendly souvenirs to fulfil the demands of tourists, and the tourism activities should be varied.</p> <p>2) Arrange the tourist management and activities development that allow tourists to take part in producing souvenirs, and storytelling about multiculturalism should be taken into consideration in order to create the identity and uniqueness of Pattani.</p> <p>3) Set the packages for ecotourism that include the expenses of travel, activities, accommodation, meals, etc. Create the experiential tourism programmes with separate tourism lists and expenses to provide the information and facilitate the tourists.</p>
B	Business (Goals 8 and 17)	<p>1) Establish the network of experiential tourism entrepreneurs in the community and from the surrounding region, as well as the service business entrepreneurs to accommodate the creative ecotourism management.</p> <p>2) Form the community enterprise or professional group to discuss the production and souvenir design development to promote the ecotourism in Bang Pu community.</p> <p>3) Organise the training and provide the knowledge about ecotourism business management to the entrepreneurs in the community.</p> <p>4) Develop the online marketing tools to promote ecotourism by emphasizing the participation of the community, sustainable tourism and environmental–friendly tourism.</p>
A	Accessibility and Accommodation (Goals 9 and 15)	<p>1) Develop or add routes to and from tourist attractions, both by land and water, by linking tourist attractions in different subdistricts and nearby tourist attractions such as Ta Chi Cape.</p> <p>2) Community owners of tourist attractions areas should arrange a car service to transport tourists from the city to the tourist attractions, taking into account the transportation service and travel in an environmentally friendly manner. Thus, this may be considered an expansion of tourism.</p> <p>3) Increase and develop tourism information communication channels, including tourist attractions, eco– tourism activities, traditions, Muslim festivals in each month, and historical information in the area since the era of Yaring City, so that tourists can search for and access information easily.</p> <p>4) Update the tourism information of Bang Pu Community to be current, and prepare documents in an online format or QR Code or travel route to distribute to various locations, and use social media to provide information to tourists interested in traveling.</p> <p>5) Provide training and knowledge on accommodation management, Muslim culture, and community lifestyles (homestays) for the villagers in the community.</p> <p>6) Encourage and support villagers in the community to organise accommodations that provide experience with the Muslim culture to accommodate tourists along with creating rules and regulations.</p> <p>7) A homestay committee should be established to conduct a queue to receive and handle the accommodation reservations.</p>

N	New Normal (Goal 9)	<p>1) The community should focus on the communication to create the confidence in the public health in the area and create the media to publicise the practices for ecotourism to suit the New Normal society for safety.</p> <p>2) Technology applications should be implemented to communicate and promote the Responsible Tourism among the Supply Chain and Thai tourists. The activities that are responsible for society and the environment should correspond to the natural tourism that is being restored sustainably.</p>
G	Good Governance (Goal 17)	<p>1) A short- and long-term plan for sustainable tourism management that involves the environmental-friendly concepts should be created.</p> <p>2) Plan the tourism management by the community so as to equally and fairly distribute the benefits and income to the community members in Bang Pu community.</p>
P	Participation (Goals 14 and 17)	<p>1) Create a network of experienced tourism entrepreneurs in the community and nearby areas, including building a network of business operators to facilitate creative ecotourism management.</p> <p>2) Establish a community enterprise or a professional group to meet and discuss the production and development of the product design for tourism souvenirs to support ecotourism in the Bang Pu community, Pattani Province.</p>
U	Universal Design (Goal 5)	<p>1) Develop the tourism areas and attractions as the public spaces so that the entrepreneurs and community are able to utilise the space fairly.</p> <p>2) Improve the access and connection to be in harmony with nature and support the tourists of all ages and genders.</p> <p>3) Develop the ecotourism map that can communicate to all users, such as children, disabled people and the elderly.</p>

In order to obtain the substantial outcomes, the researcher developed the knowledge based on the proposed guidelines to extend the benefits for the community in three approaches involving 1) the communication signs for ecosystem learning in Bang Pu community, which are located at the Bang Pu Learning Centre, 2) an ecotourism map in Bang Pu Community, Pattani Province, and 3) the database of community photos, from the normal perspective and bird's-eye view, and the media to promote the tourist attractions in the community for the marketing purposes.

Discussions

The research results indicate that the tourism resources based on biodiversity in Bang Pu Community, Pattani Province which were outstanding, including 32 types of the natural resources, 11 cultures, and 13 tourism activities, were consistent with the Pattani Province Development Plan, 2018, which described that the Bang Pu community has the unique and natural ecotourism attractions, such as the mangrove forest in Pattani Bay, where the ecosystem is nearly perfect, and

the beautiful swamp forest with the fertility of aquatic animals and wide variety of bird species. Furthermore, this was in line with the research of Chairat, (2016), who examined the potential development of tourist attractions resources and the Pattani Bay community and found that the tourism resources in Pattani Bay involved the beaches, mangrove and swamp forest learning resources, historical resources and ancient remains, and local fishermen's way of life, which are suitable for extension of the marketing and services to provide to the tourists.

In terms of the components of ecotourism in each aspect, it was found that the component that attracted the tourists the most was the sites having the nice and clear weather for relaxation, with the average opinion score at 4.58. In terms of the tourist activities, the first opinion was on the experience gained from the tourist activities, with the average opinion score at 4.43. This was in accordance with the concept of ecotourism as defined by the United Nations Environment Programme (UNEP), the Ecotourism Society, and World Tourism Organization stating that "ecotourism can carry out the tourist activities in the region with the resources and such activities should not disturb the natural conditions, aim for the educational purpose, satisfaction with the scenery, plants and animals, understand the cultures and background of the natural environment with no interference to the ecosystem. Meanwhile, it provides the economic opportunity which leads to the resources conservation in the community". In the aspect of accessibility, most agreed with the simple access to the information sources via various channels, such as social media, pamphlets, tourist information centres, etc., with the average opinion score at 4.37. In regard to the facilities, the tourists agreed with the matter of sufficient facilities, such as toilets, parking, staff, and information centres, with the average opinion score at 4.46. In addition, the opinions of tourists on the accommodations reflected that the accommodation was clean and safe, with the average opinion score at 4.54. This was in line with the study of Sirinan, (2016), who examined the participant tourism management guidelines in terms of the accessibility of tourist attractions and found that transport system should be well-designed and reliable and the accurate signs should be posted at the intervals. Moreover, regarding the facilities, the inclusive services should be provided while the security system at each tourist attraction should be arranged.

Conclusion

From this research, the guidelines were developed based on the participation. As a result, the 29 guidelines under the English term "the ECO BANGPU Model" towards the Sustainable Development Guide (SDGs), which stands for E: Ecotourism, C: Carrying Capacity, O: Organic

Products, B: Business, A: Accessibility and Accommodation, N: New Normal, G: Good Governance, P: Participation, and U: Universal Design, was obtained.

Suggestions

In order to obtain the substantial outcomes, the researcher developed the knowledge based on the proposed guidelines to extend the benefits for the community in three approaches involving 1) the communication signs for ecosystem learning in Bang Pu community, which are located at the Bang Pu Learning Centre, 2) an ecotourism map in Bang Pu Community, Pattani Province, and 3) the database of community photos, from the normal perspective and bird's-eye view, and the media to promote the tourist attractions in the community for the marketing purposes.

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