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DASTA'S RESEARCH COLLECTION
ON SUSTAINABLE TOURISM

Designated Areas for Sustainable Tourism Administration (Public Organization)

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own DASTA

Foreword

Welcome to DASTA's Research Collection on Sustainable Tourism 2015. This year is a very special year for tourism and climate change as COP21 has reached an unanimous agreement on mitigation of climate change. This historical agreement aligns with DASTA's attempt to drive tourism industry towards sustainable path. Tourism, a heavy industry without smoke, unavoidably holds responsible as a main factor that causes global warming. For dozen of years, DASTA has put efforts on developing sustainable tourism in Thailand as well as creating alternative tourism products such as Low Carbon Tourism and Creative Tourism to mitigate or prevent global warming caused from tourism. Consequently, DASTA has gained various case studies, best practices and lessons learnt in several aspects of tourism industry nationwide. Although several of DASTA's projects are successful in moving tourism towards sustainability, there is still a long way to go.

As per this 2015 issue, the research collection still emphasizes on empirical research works both quantitatively and qualitatively shown in not only scientific research works such as carbon emission measurement in tourism, but also in social science research works such as creative tourism and destination management. This shows that there is a wide range of academic studies in favor of sustainable tourism. Moreover, in the end of this issue, there is a short non-empirical research about the competitiveness of Thailand's tourism industry among Asian countries.

Once again, on behalf of DASTA, I wish that DASTA's Research Collection on Sustainable Tourism 2015 will provide numerous insights with useful information and findings in relation to sustainable tourism. As to reinforce one of DASTA's strategies in developing essential knowledge for sustainable tourism development, our designated areas are always open for researchers who are eager to experience new things in academic life.
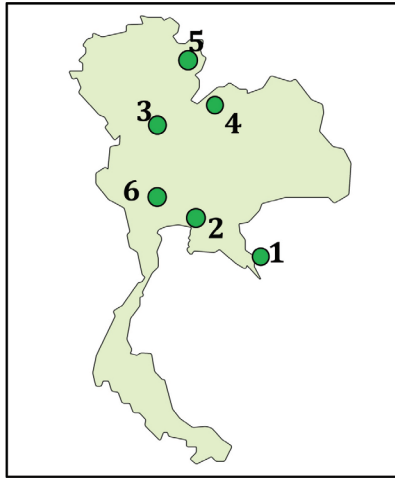
Dr.Nalikatibhag Sangsnit
Director-General of DASTA

Content

Designated Areas for Sustainable Tourism Administration (Public Organization)

The Designated Areas for Sustainable Tourism Administration (Public Organization) or DASTA was founded since 2003. As it enters a new decade of operation, there are 6 sites for the development of destinations in designated areas for sustainability in all 3 dimensions, economic, social and environmental, namely, Chang Islands and Vicinity, Pattaya City and Vicinity, Historical Parks of Sukhothai, Si Satchanalai and Kamphaengphet, Loei, Nan Old City, and Uthong Ancient City.
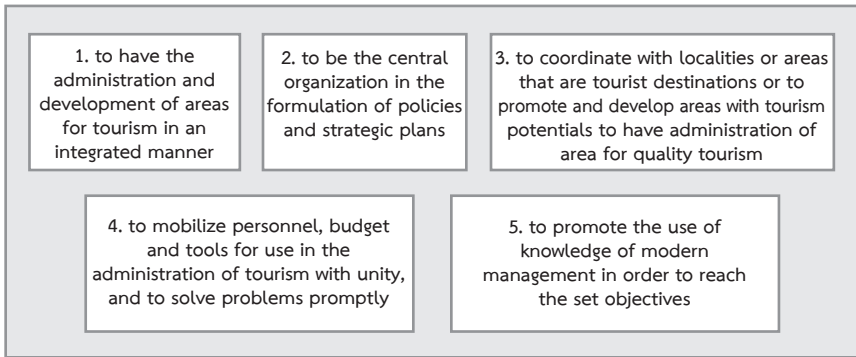
Designated Area	Date of publication in the Royal Gazette
1. Chang Islands and Vicinity	24 Sep 2004
2. Pattaya City and Vicinity	19 May 2009
3. Historical Parks of Sukhothai – Si Satchanalai – Kamphaeng Phet	8 Jul 2011
4. Loei	27 Jul 2011
5. Nan Old City	28 Jun 2012
6. Uthong Ancient City	28 Jun 2012

Sustainable Tourism in Thailand

Sustainable tourism means the management of tourism for balance in 3 dimensions, economic, social and environmental, that is, tourism as the source of income, tourism as the tool for the conservation of tradition, culture, fine lifestyle, and as the tool for environmental conservation. Beneficiaries from sustainable tourism development are tourists, proprietors of tourist destinations, and entrepreneurs. However, development administration should come from cooperation by several sectors, state agencies, the private sector and the civil sector, at national, provincial, local and community levels.

The Designated Areas for Sustainable Tourism Administration (Public Organization) or DASTA was founded according to the rationales in the promulgation of the Royal Decree on the setting up of the Designated Areas for Sustainable Tourism Administration (Public Organization) B.E. 2546 (2003) with the objectives set in accordance with the government policy to develop tourism in order to increase and distribute income to local communities, with the roles defined for DASTA as follows:

1. to have the administration and development of areas for tourism in an integrated manner	2. to be the central organization in the formulation of policies and strategic plans	3. to coordinate with localities or areas that are tourist destinations or to promote and develop areas with tourism potentials to have administration of area for quality tourism
4. to mobilize personnel, budget and tools for use in the administration of tourism with unity, and to solve problems promptly		5. to promote the use of knowledge of modern management in order to reach the set objectives

The Objectives in the announcement

Tourism resources are tourist destinations that can attract tourists to the area so as to increase and distribute income to local people. The objectives in the announcement of the designated area for sustainable tourism administration are:

1) coordinating tourism administration among government agencies, state enterprises, local administrative organizations, or any other state agencies entrusted or authorized to administer tourism, at national, regional or local levels,

2) coordinating the use of authority of government agencies, state enterprises, local administrative organizations, or any other state agencies entrusted or authorized to develop economy, society, community, town plan, the environment, tourism or law and order, to integrate sustainable tourism administration,

3) promoting and supporting the development and conservation of the environment for sustainable tourism,

4) promoting the use of potentials of various units, both in the government and private sectors in the development of tourism market,

5) promoting and supporting the people and communities to participate in the conservation and development of tourist destinations in their local community areas,

6) promoting and supporting local administrative organizations and local communities to arrange the maintenance of art, tradition, local wisdom, or fine culture of the localities,

7) promoting the compilation of tourism information, and,

8) promoting the development of areas with tourism potentials, so as to create employment and uplift the quality of life and living condition of the localities.

Policies in the development of designated areas for sustainable tourism

DASTA was founded according to the rationales in the promulgation of the Royal Decree on the setting up of the Designated Areas for Sustainable Tourism Administration (Public Organization) B.E. 2546 (2003) with the objectives set in accordance with the government policy to increase and distribute income to local communities, under the policy framework in the development of designated areas for sustainable tourism to create balance in 3 dimensions, economic, social and environmental, as follows:

1) Co-Creation tourism policy, to present guidelines in accelerating the creation of balance in economic, social and environmental dimensions, through the "think together, plan together, act together, take joint responsibilities and joint benefits" approach.

2) Environmentally-friendly tourism policy or Low Carbon Tourism

3) Creative Tourism policy

4) Networking policy with development partners both local and foreign

Indicators of Success in Sustainable Tourism Development

DASTA continuously and seriously pushes for balance under the operation in Co – Creation, Low Carbon Tourism and Creative Tourism frameworks. The goals of success in the year will be the uplifting of success measurement of the operation as seen from the "Index of Well-Being of Residents in Communities in Designated Areas" for instance, income, quality of life, society, culture and the surroundings of destinations, with success indicators according to the goals of sustainable tourism development as follows:

Goal	Indicators
1. Increasing tourist number and creating income for people in destination area, so as to uplift the quality of life, living condition and to equitably develop the national economy	- Percentage of increased community income in average - Level of well-being of communities in designated areas
2. Art, custom and tradition, local wisdom or fine culture of the locality are developed and conserved	- Level/percentage of success in the formulation and conducting of the project in promoting and developing art, custom and tradition, local wisdom or fine culture of the locality
3. The environment at destinations in designated areas is taken care of and maintained for sustainable tourism	- Percentage of enterprises or communities in 6 designated areas that join activities in measures to reduce global warming condition, with the measurement of carbon footprint, and can pass the Low Carbon assessment benchmark

Goal	Indicators
4. Uplifting service and administrative standards to enhance the potentials and competitiveness in tourism	- Percentage of the Community of Practice that is made ready to operate as planned to develop according to the verification benchmark for community destination
5. Every sector participates in sustainable tourism development	- The number of development network partners in designated areas increases
6. Creating satisfaction among tourists and development network partners	- Level of success in the use of satisfaction survey form for the development of services provided in Chang Islands and Vicinity - Percentage of the level of satisfaction in services provided in designated areas - Level of stakeholders' confidence towards tourism development
7. Providing services in knowledge for sustainable development of destinations	- Level of success in the transfer of knowledge on environmental management for sustainable tourism development - Number of propagated sets of knowledge on sustainable tourism - Number of Community of Practice (CoP) in sustainable tourism

Goal	Indicators
8. Defining designated areas with potentials, along with the drawing up of master plans and operation plans for the development of designated areas for sustainable tourism	- Percentage of average success according to the plan to drive the master plan to practice
9. Promoting and uplifting the development of designated areas with tourism potentials	- Level/ percentage of success of operation according to the project to enhance the capacity and uplift the development of the area for competition in tourism
10. Rehabilitating deteriorated destinations and developing new destinations in designated areas	- Level/percentage of success of operation according to the project to develop and rehabilitate destinations in designated areas
11. Developing goods, services and facilities in tourism to be environmentally - friendly	- Number of exemplary enterprises in environmentally-friendly tourism - Level/percentage of success of operation according to the project on the development of goods, services and facilities in tourism
12. Promoting marketing and public relations campaigns for sustainable tourism	- Level/percentage of success in the formulation and implementing project on the development of marketing and public relations campaign of designated areas in tourism

Goal	Indicators
13. Efficient budget management and operation	- Percentage of disbursement according to the expenditure plan - Success of bringing operation plan in improving internal work process into practice
14. Creating and development the body of knowledge and ICT database in tourism	- Percentage of success in operation according to the e-learning system development plan - Percentage of success in operation according to the development plan of database of destinations in designated areas
15. Developing the capacity of personnel and organization	- Level of success according to Individual Scorecard - Percentage of success in operation according to the annual personnel development plan
16. Developing corporate governance and good governance within the organization	- Level of corporate governance development

Key Success Indicators of Creative Tourism Activities in Thailand: A Case Study [1]

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Abstract

This article tried to indicate the suitable key success indicator of creative tourism program that had been developed in Thailand. In order to find the real benefit for the community and to develop new creative tourism trend in Thailand. Through process and development of Creative tourism together with Designated Area of Sustainable Tourism Administration or DASTA (Public Organization) and Thammasat University. The creative tourism project had created a network between all creative tourism activity hosts in the designated areas. Through the tourism activity will create a process of learning and a process of sharing among Creative Tourism research teams, activity hosts and community itself. Community members and tourists are able to appreciate the value of their own cultural heritage through creative tourism.

Creative Tourism tries to find the key success indicator to indicate the success of creative tourism for the communities from developing new trend of tourism within their areas. We could no longer consider only the benefit of economic progress as a key success of Creative Tourism. The main purpose of creative tourism is to improve the tourist potential through learning and action as well as create a more sustainable tourism. Creative Tourism also intends to improve local knowledge between activity hosts and communities. The benefit from economic aspect that didn't concern about cultural or how traditional tourism trend may have a negative effect on the community identity. Creative tourism as a new trend of creative tourism is the new way to preserve diversity within the society.

Keyword: Key Success Indicator, Cultural Heritage, Community, Value

Introduction

Thailand Economic had only been analyzed and consider on macroeconomic level and market indicator and economic growth. (Pornchai) Under the rapid change of economics and technology, Thailand had faced many changes. Within these past several years, Thailand had faced many troubles from within the country such as natural disaster, unstable economic and political conflict. However, tourism industry still able to support Thailand economic. We can't deny that Tourist industrial is very important to country development and management. Thailand income-outcome always the only thing that use to indicate the country's stability.

When considering the traditional definition of Tourism, 'Tourism' as traveling for leisure or travelling that only concern about how traveler will spend their time in another place for pressure reason not for career option or income. While 'Tourist' or 'Vistior' have defined as and 'overnight visitors' or 'same day visitor'. We can conclude that

the main definition of tourist is person who temporary visit place for at least 24 hours.

The definition of tourism to be exact is to enter another place, but when tourist enter places they will surely have to interact with the community and local. Tourist could not hide themselves from the community they are visiting or the people that live within the area. The environment will surely receive an impact and people will have to adapt to a new culture that differs from their own. The community will have to learn and experience different culture from their own. The community will be able to learn and experience a different 'way of life'. Therefore, tourist and visitor weren't the only one that receiving new experience, but the community that they visited also facing the change in many ways. For that reason, we can not only concern only tourist in Tourism.

In these days, 'Tourism' had developed new definitions as the trend of tourism had differ from the traditional one. Cultural tourism as one of the traditional trend of tourism that tourist will gain experience through sightseeing. Leisure, tourism as one of the traditional tourism that tourist will gain experience through customer service and the other leisure establishment. Today, Thailand has new tourism that differ from the traditional one, as for now a sustainable tourism becomes the new trend of tourism in Thailand. As the traditional tourism, lack of concern of its negative effect on the country. While sustainable tourism help create knowledge, preservation of environment and culture.

Tourism industry and impact on Thai community

The significant image of Thailand Tourism is Thailand have many attractions for tourists such as many night leisure traveling places, famous variety delicacies and cuisines, and many walk market. We could state that Thailand is the one of most 'leisure' destination.

Thailand Tourism is well advertised and for many years, tourism was able to enhanced Thai economy even when in crisis. The tourist industry focuses only on how to increase the country's income but lack of concern about other impacts it may have on the environment or culture. Many facilities and utilities such as water, electricity, and foods must be well organized to provide satisfactory service for tourists. Many of tourism locations, mostly are natural areas such as mountain, beaches and waterfall. Those areas have the diversity that is hidden within the area, both in natural aspect or cultural diversity.

Excessive tourism will only take a toll on the environment, it will take longer time for the tourist location to recover. There are many pollution, waste and toxins that Thailand has to deal with after excessive use of natural resources. Beside environmental issue that result from the tourism, traveling in many ways provides a cross cultural experience that tourist will experience a different experience from their everyday life. Travelling create an area in which allows communities and the foreigner or outsider to connect. It's provide them the chance to experience with new culture or in any case new identity. The outsider that entering the said tourism location force community to adapt to a new way of life, a community must create new business, profession to accommodate tourist such as hotel, restaurant, and convenience store. Especially in Thailand that receive more than 15.4 tourists a year. Many famous leisure tourist locations like nightclub, bar or cabaret must ready themselves to accommodate many numbers of tourists. The government of Thailand itself only support tourism that interested in creating beauty, safety and convenience environment for tourist. The culture or community had been buried under Thailand economic policy, its main purpose was only to increase country income through advertising.

Tourism in Thailand originally was trying to promote Thailand cultural but not for the sake of culture itself, but as a marketing plan

and strategy to increase the number of tourists. They are many signature cultures that Thailand tries to push through as a tourist attraction. Through advertising tourist receive information about cultural tourism and to advertise culture and merchandise for tourist. By promoting the identity of places and culture, creating a Thai brand to support marketing. Thailand always promotes and advertise ancient architectures, historical place, arts, sport and culture.[6]

Promoting cultural through tourism may help people see the value of Thai art and tradition. These cultural promoting bring back many festivals or any culture event that long lost both in practicing and its meaning. Through culture promoting the cultural heritage become more distinctive in order to advertise. Within tourism industry in the developing country like Thailand receive many negative impact on cultural because of the increasing number of tourist. Thailand must adapt itself in order to receive many number of tourist and to increase the income. Thailand's existent idea and practice had change, some cultural have to overturn it way to become a service for tourist can participate in. Many of service and activity turned in to something that tourist can relate to. Therefore economic structure of Thailand has change over the years which undermining tourism experience and make tourism become less distinctive.

The Creative Tourism as a new tourism trend that Thammasat with Designated Area of Sustainable Tourism Administration or DASTA (public organization) together had developed for several years, the main purpose of developing Creative Tourism in Thailand is to create a new tourism destination. We can say that creative tourism tends to help tourist understand in 'value' and 'spirit of place' that will also increase business opportunity for Thailand as well. This new trend creative tourism originally aim to provide tourists a chance to improve

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[6] Annual Report 2014 Thailand Tourism

their own potential through lean and practicing. Crispin Raymond and Greg Richards together had coy the new term of tourism as 'Creative tourism', "Tourism which offers visitors the opportunities to develop their creative potential through active participation in course and learning experiences which are characteristic of the holiday destination where they are undertaken". (Richard and Raymond, 2000) Creative tourism that also help the community to see new perspectives of tourism, that product and tourist is not the only factor that would be able to support tourist too. This new kind of tourism creates corroboration and 'engaging' that change tourism in a more sustainable way, both environmentally and socially

From cultural tourism to experience the cultural, the old traditional tourism must face a new challenge. The traditional cultural tourism only use 'seeing' as to experience new tourism. Tourist use walking and seeing instead of thoroughly 'engaging' in spirit of place or 'learning'. The 'seeing' as a 'learning' through seeing way of market selling. It's limited the access of travel by 'seeing' will not allow tourist to understand 'spirit of the place' Tourist didn't involve in the area. So the creative tourism is the chance to let the tourist communicate through community.

Beside that Creative Tourism had offer new tourism destination and culture of place which help local to be more attractive to the tourist. Because, 'experience' and 'sharing' help the tourist feel more engage than seeing the place. When they communicate and participate, they will be able to improve their relationship that help tourist relate to the community. Finally, these engaging experience, local will be able to spread their knowledge and tourist would carry ideas and knowledge. In order to do that, community must adapt itself to be able to live with the tourist and take care of public place so it become more attractive to tourist. Community have to adapt themselves through 'Creative Tourism' project, they will try to improve their culture

and activity to become more distinctive and they would be able to value what they have.

Cultural diversity that buried in the tourist place.

In 2001, United Nation of Education, Scientifics, and Cultural Organization: UNESCO) try to push through the understanding of Diversity and cultural, by a state that 'every culture are equal in dignity and value'. To reach the purpose in support and protect the diversity of culture. People are not just limited themselves in their own culture, but they must be able to protect what they are. Cultural diversity is very vague in its meaning. Under UNESCO's definition the diversity of cultures is counted as 'cultural heritage of humanity' and also mean the place that includes a variety of things or at places that many have combined within the boundary. The diversity of action that can separate to many things depend on the specialty of the group in the area like try to spreading activity that only the group specializes in.

Cultural that appear in tourism usually portrait as a product like a souvenir for selling, these souvenirs are cultural reproduction that reproduce in a great number of quantities. These cultural products may represent the culture, but it's not truly concern about history or their true value. Value that these products may present still lack the involvement in true knowledge of the culture. For that reason cultural tourism as leisure travel still lack concern about the diversity, we may say that the idea of cultural variety in Thailand is still a new topic. We cannot argue that Thailand has cultural diversity more than it had shown for. Even though, some of the tradition that we can see in the media didn't truly represent the true culture or its diversity, but the 'spirit of place' and traditional still merges through every tourism location. The tourist can deduct it from something such as folk song, local cuisine, and traditional practice, occupational and believes. The memory and history still connect to the location and the people.

To preserve the variety of cultural is most crucial, even though the meaning itself is still very subjective. Therefore, to preserve the variety is to preserve 'right to believe' and 'right to protect' the identity of one culture. In the other meaning is to preserve the identity as their own right of being human, such as languages, religions and identity. As mention above are the basis of the human right from the definition of the United Nation. That is the right to protect their identity as important as right to protect their own life. In Thailand, for the past 15 years, the cultural diversity had been neglected, to preserve cultural diversity, equal to preserve the identity of the community itself. In the other meaning is to preserve the identity as their own right of being human, such as languages, religions and identity. As mention above are the basis of the human right from the definition of the United Nation. That is the right to protect their identity as important as right to protect their own life. In Thailand, for the past 15 years, the cultural diversity had been neglected, to preserve cultural diversity, equal to preserve the identity of the community itself.

Methodology

After several years of developing Creative Tourism project in Thailand with community and activity's host. To crate the new paradigm for Thailand tourism by supporting and creating an appreciation in value of the existing culture that help the community appreciate their own cultural heritage. With this attitude brings in the purpose to indicate a key success through researching, developing and creating networks by the experts and research team for several years. The key success indicator paper tries to indicate the success of creative tourism in order to improve this new type of tourism. To develop a successful new trend of tourism in Thailand, this paper are trying to reflect the result from developing creative tourism in Thailand, in which our researcher had study, develop and create a corporations network throughout all the designated area assigned by Designated Area of Sustainable Tourism Administration DASTA.

Designated Area of Chang Islands and Vicinity	Muslim Cham's way of life at Ban Nam Chieo
Designated Area of Pattaya City and Vicinity	Coastal Fishing at Banlamung
Designated Area of Sukhothai - Si Satchanalai - Kamphaeng Phet Historical Parks	Folk Dance inspired by Sukhothai Celadon painting
	Suthep Ceramic shop
	Motana Ceramics work shop at Si SAmrong District
	Fabric lamp painting
	Sukhothai Votive tablet at Muang Kao
	Sukhothai Celadon works at Khoh Noi
	Ceramic Workshop
Designated Area of Loei	Cookery Class for Local delicacies at Dan Sai
	Cotton Quilt blanket workshop at Chiang Khan
Designated Area of Nan Old City	Tung Work shop at Pra Kerd Temple
Designated Area of U-thong Ancient City	Beads making work shop

These activity is the result of creative tourism had observed and interviewed concerning on Tourist's views, their attitude and their perception on tourism. Beside, tourist perspective, the team also observed and interviewed with the activity's hosts, entrepreneurs, and business owner.

Assessment Criteria Characteristics	Expectation Before		Satisfaction After		Sugges- tion
	Score	Note	Score	Note	Note
Area wise Characteristics					
1. Distinctive with diversity both cultural and natural.					
2. Community must realize and appreciate value of their cultural heritage (Spirit of Place/Sense of Place)					
3. Must reflect authenticity					
Process wise Characteristics					
1. Activity must have learning and exchanging process					
2. Tourist must be able to have direct experience with the host					
3. The process must encourage a better understanding of area and deeply appreciate the spirit of place					
Activity Host Characteristics					
1. Hosts are ready and enthusiastic to provide knowledge for tourists					
2. Capable to communicate and explain the meaning of specific activities					
3. Fully and truly understand the activity					
Management Characteristics					
1. Well-equipped environment and preparation for a suitable area for an activity					
2. Suitable activity time duration					
3. Suitable price and cost					

Assessment Criteria Characteristics	Expectation Before		Satisfaction After		Sugges-tion
	Score	Note	Score	Note	Note
Environment Characteristics					
1. Suitable and well prepared environment					
2. Create balance between economic, social, and culture and assist in preserving environment					

In order to evaluate all the 13 activities within the designated areas, the team develops a questionnaire. The questionnaire consisted of area qualification, process, activity' host, management and environment to indicate the key success indicator of creative tourism in Thailand. The area qualification means the tourism's locations must be distinctive and have their own special characteristic. In another word, the area must reflect the 'Spirit of Place' or the 'Authenticity'. While the process characteristic means that it must provide a good opportunity for tourist to reciprocating between cultures. The activity's host must be able to express the real meaning of tourism and they should truly understand their culture deeply. The Environment characteristic means that all the tourist activities should maintain balance between social, environment and economy. The management characteristic means that the hosts should be able to provide the enough equipment, with suitable time and price.

Result of evaluation by expert	Total	Characteristic		
		Area	Process	Else
DASTA 1 - Muslim Cham's way of life at Ban Nam Chieo	84.00	16.75	33.00	34.25
DASTA 3 - Coastal Fishing at Banlamung	86.10	17.70	34.40	34.00
DASTA 4 - Folk Dance inspired by Sukhothai Celadon painting	89.38	17.50	35.75	36.13
- Suthep Ceramic shop	77.75	15.50	29.00	33.25
- Motana Ceramics work shop	87.88	16.75	35.25	35.88
- Fabric lamp painting	85.50	16.25	34.00	35.25
- Sukhothai Ceramic workshop	84.75	16.00	34.50	34.25
- Sukhothai Celadon workshop at Khoh Noi	89.88	19.00	35.25	35.63
- Sukhothai Votive tablet	90.88	19.25	35.50	36.13
DASTA 5 - Cookery Class for Local delicacies at Dan Sai	86.25	17.25	33.75	35.25
- Cotton Quilt blanket workshop at Chiang Khan	81.38	16.50	31.75	33.13
DASTA 6 - Celemonial flag 'Tung' Work shop at Pra Kerd Temple	91.13	18.50	36.00	36.63
DASTA 7 - Beads making work shop	81.17	17.50	23.25	24.88

As seen the evaluation from our expert, the result shows that all 13 activities have great potential. Firstly the area characteristic show that the Sukhothai votive tablet has the highest score with 19.25%, next in the score are Ceramic workshop with score 19% and ceremonial flag "Tung" workshop with 18.50%. Secondly the process characteristic, ceremonial flag "Tung" has the highest score with 36% next down is a folk dance inspiring by Sangkalok pattern 35.75% and Sunkalok votive tablet 35.50%. In other characteristics, ceremonial flag "Tung" with the score 36.63% as the highest, while next in the score are Sukhothai

votive tablet and Thai folk dance inspire by Sungkalok pattern. When evaluating from summit score, Ceremonial flag 'Tung' has the highest score with 91.13% next are Sukhothai votive tablet and Sukhothai ceramic workshop with the same score 89.88%.

Distinctiveness, local identity, spirit of place

'Spirit of place' meaning the area must be significant and distinctive from any other location, show in area characteristic. Because it's includes the story, memory, history and believe that you cannot find from any other places. 'Spirit of place' has the most subjective meaning because it's depend on one's perception and understanding. When you consider of its aspect, it didn't mean road, place, or architecture, but it has much deeper meaning. We can only perceive 'Spirit of place' from feeling and perception through touring experience.

'Spirit of place' also connects deeply with environment, economy and society within the place. It's mean that with all of those mentioned above make that location become more distinctive and different from any other places. 'Spirit of place' is the real core that important to a person or community. In itself, 'spirit of place' had included history, perception, tradition, architecture and product or anything that shows the identity of the place. Through the meaning it represents, spirit of place is still the idea that is very hard to grasp, it changes through time, and through the environment of the society. The change in culture and society are the most important thing that may reflect on 'spirit of place' for it might disappear in time. Especially, when the economic and societal in now a day. All the convenience store and many other culture reproduction that expanded in every corner of society. The change in culture and society are the most important thing that may reflect on 'spirit of place' for it might disappear in time. Especially, when the economic and societal in now a day all

the convenience stores and many other culture reproduction that expanded in every corner of society.

- Designated Area of Chang Islands: Muslim Cham way of life Ban Nam Chieu is able to show how the activity host as part of the community is able to convey the spirit of place by present how Muslim Cham ways of life is connected with the society, food and the location. The location that is very distinctive and has specific characteristics because of its coastal area. Activity host is able to use the interesting history of Ban Nam Chieu to express how Muslim Cham really is

- Designated area of Pattaya City: Coastal Fishery at Ban Bang Lamung, the activity's hosts as part of the community had to rearrange their knowledge about the fishery industry. The tourism activity of this location is connected to the nature as well as connect with the 'Spirit of place' that also show the local's way of life. Through this activity the tourist's will have a chance to involve in sacred tradition before they could go in the sea and enjoy their activity. The sacred tradition involves the local explaining how their beliefs, connect to with the nature. The tourist involvement in these practices, in another way help local preserve the local identity as they had a chance to practice local's Tradition. They also have opportunity to learn about fishery industry.

- Designated Area of Sukhothai - Si Satchanalai - Kamphaeng Phet Historical Parks, all the areas are already unique and distinctive from other places. Especially, the Celadon pattern that is the cultural heritage of this area. These patterns passed down from generations to generation and connect with the identity of places. Within these tourism's locations, there are many various activities such as Ceramic making and painting, Celadon pattern painting on fabric lamp and potteries, traditional dancing lesson. All these activities inspired by Celadon

patterns that convey the identity of the locations which preserve their distinctiveness. The host as well as tourist had their chance to learn through experience they gain from participate in creative tourism development.

- Designated area of Loei: this area provides two interesting activities, Dan Sai delicacies cooking class and cotton quilt workshop. These two activities provide an activity's host a chance to pass on their knowledge about 'Kurz' tree which is a local plant. This plant provides a medicine, and is a healthy ingredient, when adapt into traditional cuisine. Cotton as an economic plan, provide the locals with material that they could make a blanket to cover against cold weather. Both of these plants are the raw material that local use to produce local merchandise. When the tourist participates in both activities, they will inherit folk wisdom and knowledge.

- Designate area of Nan: Lanna ceremonial flag (Tung) making an interesting tradition as one of the creative tourism activities. This activity is corporate by members of the community, especially the elders with the pass on tradition and knowledge. The activity's hosts can directly convey their knowledge to the tourist. They had a chance to interact and reciprocate between guest and community. While Lanna ceremonial flag making is the oldest traditional practices, and it passes on a delicate ancient pattern that are hard to duplicate. Activity's host must develop their teaching method and basic knowledge of 'Tung' for a better way to pass on what they know.

- Designated area of U-thong: bead making workshop provide knowledge and believe about ancient bead production. In the process of learning how to make beads, the host will teach the tourist each type of beads there is and provide tourists a document with picture and information. So the tourist would clearly see the history of the bead making and it's important to the community. Beside bead making

activity that this tourism location provides for the tourist, the host also provides an exploration trip around the location. By visiting the National museum of U-thong so that tourists will understand the history behind bead making

'Shared' and 'Learn' reciprocating through Creative Tourism's activity

We couldn't neglect how tourism had so many effects on the community. Especially in the economic aspect that is every area must adapt themselves to become a tourist attraction location. Many convenience stores, restaurants and hotels had been constructed to accommodate the tourist. They said location has provided the community a chance to meet people from other new cultures. The tourists that had different traditions, practice will come to experience something that is new and different from their everyday life. During an encounter between people in community and tourist will create a chance of sharing and learning about different cultures.

In creative tourism, we try to create a tourism that a tourist can 'learn' as well as to enjoy their trip. 'Learn' means the process that permanently changes human behavior through training and experiencing. These changes in behavior mean that learning and understanding will begin by changing one attitude. (Harold Lasswell, 1948) So on creative activity provide a learning process through engaging. Engaging and experiencing in the activity is a basic of learning, it also means a person would able to improve their own potential. While 'sharing' mean to provide a part or a portion of amount of something among a number of people, or to which a number of people contribute. Creative Tourism provides tourist a chance to sharing a meaningful and enjoyable experience.

Within the activity of creative tourism, communication and interaction are the process of creative tourism. So for the creative tourism activity's main purpose to improve people potential and preserve diversity, they have to set a well-organized activity. After years of developing the potential creative tourism activities, the activity's host had learned many things through the project. They had a chance to experience another culture when they traveled to Japan, They got to experience with the creative activity workshop. Finally, they brought back the knowledge and improve their own activity.

- Designated area of Pattaya City: Ban Bang Lamung host community had a chance to learn and experience with the fishery industry of Japan. They learned the positive side and negative side of creative tourism. They learn how Japan activity's host organized their fishery museum. They learned the history of traditional fishery industry of Japan and that helps them consider what they could do with what their community have. When they come back to Thailand, the activity's host will improve their own business from what they learn.

- Designated area of Loei: Cotton quilt making indicate how important the economic plant, especially cotton plant that provide a good quality fiber. The process of cotton making must be publicized as to how important it was. Cotton quilt is hard to make as its processes are quite complicated. The activity's host as part of the community through the creative tourism project learn to connect the knowledge in the area with the new ideas they discover. They organize the stages and ideas of how they could convey their knowledge about cotton.

While Dan Sai activity's host must participate in every process of the activity. A cooking class is a very delicate process with a lot of small details. Every cooking process acquires a clear explanation of what the tourists are doing. The host learned that she couldn't organize the activity by herself when there are too many people participated.

With a short amount of time of cooking lesson, the host decided that they should find the assistant in the activity. Which they learn through experience and field study in Japan.

- Designated area of Nan: this activity help tourist to have a chance to engage with the community. Especially the elders in the community are the leader of the activity. They directly speeded on their knowledge through experience with the activity. Ceremonial flag (Tung) making is the traditional practice that passed on from generations. With the delicate Celadon patterns are hard to duplicate the host develop a new method to educate people the way to make them. They develop a clear process that will easier for tourist to understand.

- Designated area of U-thong: bead making is the activity that creates the process of learning. While learning how to make beads, the host decides to gather the information as a typed document so the tourist will have a clearer picture of bead history. The idea that activity's host had improvise from the idea they learn through experience and field study in Japan. As we can clearly say that during developing creative tourism in Thailand help the host improve their knowledge and quality.

'Value' and 'price' to create balance between culture and environment

A community that has tourist attraction location has many roles to play, as a provider and an entertainer. They had to provide an inside experience to make tourist felt that this is worth spending their time. And after providing a tourism experience and service, the community must clean up after the tourist has gone. They have to deal with the amount of waste, they have to fix and prepare for the next tour. In another role they have to take care of the environment and the economy of the community. Not only community will gain

their income through the creative tourism's activity they will also improve their creative potential. The tourist and the host will not only consider about the income or price of the activity but its true 'value'. Under the traditional tourism had always overlooked the diversity that lay beneath the mainstream culture reproduction. The 'value of the community itself that make it significant. This creative tourism as the new trend of tourism will provide community, income, experience and knowledge. In this situation we cannot conclude that it's truly create balance in a community's economy or society. Until, the activity had been evaluating its effect on the community.

Appreciating 'Value' of cultural heritage is the main topic that the project aimed for. To develop creative tourism, especially the economy, society and culture had been overlooked. Tourist not truly cherish the culture surrounded them and the community in the said tourist location will only try to provide tourist all the convenience and comfort. This doesn't provide the tourist new experience or improve their potential. Understanding or value of what the community helps preserve the distinctiveness and characteristics. The community will able to value in what they have, they must truly understand that their own culture is the very thing that preserve distinctiveness. The community must be made to be proud of what they have in order to understand the value of what they have. It will help the environment and culture as well. Their own distinctiveness is the result of the experience and knowledge that been cultivated for so long. Their own knowledge and traditions are as important as the modern knowledge. The local wisdom is something that could not be ignored because it indicated how the culture truly survive through times. The 'cost' of wisdom didn't not equal the 'value' of it.

Designated area of Chang Islands: experience Cham way of life is trying to represent the Muslim's community as well as their distinctive cuisine. The activity's host realized how the area's environment is the main resources of income for the community. And they know that their cultural heritage is the main tourist attraction. The value of their own tradition had been appreciated as they entertain the tourist with the meaningful activity.

Designated area of Pattaya City: the fishery's activity in the coastal area of Ban Banlamung is the activity that helps the community appreciate 'value' and 'price' of the area's natural and its ocean resource. The community must manage the natural resource and gather any information they have about the fishing industry so they can properly convey their knowledge tourist.

Designated area of Sukhothai, Si Satchanalai - Kamphaeng Phet : ceramic making shop in this location is well-known both in the country and outside country. Under creative tourism development in Thailand, the 'value' of Celadon making procedure and its pattern become well-known within the community. Celadon is not just community's products, but it is one of the traditional wisdom of adapting natural resource to make everyday utilities. Pottery making that's been passed on from generation to generation had conveyed the culture and history and knowledge and full of tradition. The tourist will acknowledge and receive the true value of the activity. Creative tourism provides tourist to appreciate the 'value' of the place.

Designated area of Loei: this activity involved with the local plant 'Kruz', its properties are beneficial to the digestive system and blood system as well as taste good. Local people always mixed it with their food as their special recipe that can only find in this location. Beside the distinctive cuisine, this community has a very distinctive way of speaking that they consider as their special trait. The 'value' of their

traditional medicine and local languages is the thing that can truly show the 'spirit' of their own.

Conclusion

After evaluating the creative tourism activity that had been developed for several years. Creative tourism in Thailand that develop together with Thammasat University with Designated area for sustainable tourism in Thailand DASTA. Each tourism's location in Thailand had shown great potential as the activities with readiness to become a new creative tourism destination. All the location had the ability to preserve their own distinctiveness and able to create the process to reciprocate between tourist and community's host. Beside the said reason, all these activities remind the host the 'value' of their cultural heritage.

From the interview that had been conducted with the tourist, every activity have their own distinctiveness that different from another location. There are still many parts that need improvement. Many places still lack the equipment and readiness, especially in the area of the U - thong. Bead making activity of U-thong didn't provide the activity with full experience because the lack of equipment and within the area still lack the community participation. While some of the said tourist locations still have problem convey their 'spirit of place' to the tourist, like ceremonial flag 'Tung' that didn't clearly explain the history of the activity. So the real meaning of place that couldn't not truly pass on. On the other hand, votive tablet making and Celadon painting ability to convey their meaning and history of the activity. Especially, votive tablet making were able to indicate their identity and history. Same as Dan Sai cookery class and cotton quilt making that can directly convey the meaning of the place.

Creative Tourism in Thailand should continue to evaluate the activity in the future. In order to develop better activities in the future. So that the creative tourism will become a new trend of tourism that are much more stable and very sustainable as well. This new trend of tourism hopefully will help small communities around Thailand preserve their heritage. While maintaining their identity through the rapid change of economy, society and technology

References

Beckerman, W. (1992). Economic growth and the environment: Whose growth? whose environment?

Chunhachinda, P., & Octave , J. (2000). *The Determinants of Capital Flows in Emerging Countries:* The Case of Thailand. Bankok: *Thammasat Reviews.*

Manopimoke, S. (1993). Economic Development and Environment Change in Thailand. *Thammasart Reviews.*

Manopimoke, S. (1993). Economic Development and Environment Change in Thailand. *Thammasart Reviews.*

Olson, O. R., & Ivanov, S. (2010). *Cultural Travel and Tourism . Creative Tourism Business Model And Its Application In Bulgaria.* Retrieved from culturalrealms: http://culturalrealms.typepad. com/files/creativetourismbm_article_1_lr.pdf

Raymond, C. (2010). *Creative Tourism: A Global Conversation: How to Provide Unique Creative Experiences for Travelers Worldwide.* Santa Fe: Sunstone.

Raymond, R. C. (2010). *Creative Tourism: A Global Conversation: How to Provide Unique Creative Experiences for Travelers Worldwide.* Santa Fe: Sunstone.

Raymond, R. C., & Richard, G. (2010). Creative Tourism and Local Development.

Richard, G. (2010). Creative Tourism and Local Development.

Thailand, T. A. (2012). *Annual Report.* Bankok: TAT.

Thailand, T. A. (2556). *รายงานประจำปี.* กรุงเทพฯ: การท่องเที่ยวแห่งประเทศไทย.

Wisudthiluck, Suddan; Sindcharak, Teera; Sangnit, Col.Nalikatibhag; Noithammaraj, Pornpol;. (2013). Creative Tourism in Thailand: Problems and Obstacles Case Studies of Ceramic and Cotton Quilt Making. *Thammasat Review,* 167-179.

Wurzburger, R. (2010). Creative Tourism: A Global Conversation: How to *Provide UniqueCreative Experiences for Travelers Worldwide.* Santa Fe: Sunstone Press.

Wurzburger, R. (2010). Creative Tourism: A Global Conversation: How to Provide UniqueCreative Experiences for Travelers Worldwide. Santa Fe: Sunstone Press.

การท่องเที่ยวแห่งประเทศไทย. (2553). *ดัชนีความเชื่อมั่นผู้ประกอบธุรกิจการท่องเที่ยว ในประเทศไทย ไตรมาสที่ 4.* กรุงเทพฯ: จุฬาลงกรณ์มหาวิทยาลัย.

การท่องเที่ยวแห่งประเทศไทย. (2556). *บทสรุปผู้บริหาร โครงการศึกษาตลาดท่องเที่ยว.* กรุงเทพฯ: In Touch Research

Carbon emissions in tourism sector: Case of selected areas in Thailand[1]

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Abstract

The community estimates of carbon dioxide (CO_2) emissions in three designated areas in Thailand were conducted to collect baseline information on major resources (energy and water consumptions) and waste generation from tourism sectors. The questionnaire was developed and 63 samples from six major sectors participated in this survey. CO_2 emissions were estimated based on the method introduced by the Intergovernmental Panel on Climate Change. Due

to its geographic location, the estimates of coastal area in all tourism sectors surveyed were higher than those of other areas. Among different sources of the emissions in the three designated areas, transportation fuel and thermal energy were found to be the main sources, while water use and wastewater management were the insignificant contributors in these community areas. This information is essential as well as helpful for practical energy saving and emission reduction at community level.

Keywords: Carbon dioxide emissions; Community-based low carbon tourism; Low carbon; Sustainable tourism; Tourism destinations.

1. Introduction

A rapid growth of global tourism leads to an increase in resource consumption and carbon emission in tourism sector. This phenomenon causes raising concern on possibly negative impacts on environment by the emission of greenhouse gases (GHG), especially carbon dioxide (CO_2). CO_2 emissions are not only resulted from the direct energy consumption, but also the indirect emission from service activities in tourism. Generally CO_2 is emitted through a variety of services and operations in regard to tourism activities. As an example, the operation within the hotels and accommodations involve heating, cooling, washing, cooking, etc., all of which clearly generate CO_2 at different levels. Furthermore, mass transportation of tourists to and from their accommodations and the sites of activities, as well as the private travels considerably increase CO_2 emission via fuel combustion. Moreover, miscellaneous corporate tourism-related services such as products, services, cleaning, and waste disposal also have their shares in the elevation of CO_2 emission.

There have been studies to estimate CO_2 emission from energy consumption for accommodation, transportation and activity of tourist sectors (Tsai et al., 2014; Liu et al., 2011; Lin 2010; Kuo and Chen, 2009). Tsai and his associates (2014) showed that the level of emitted CO_2 caused by electricity consumption was approximately 88% of the total emission. This indicates that electricity usage is the main contributor to energy consumption and CO_2 emission in hotel industry. Other forms of energy sources such as fuel oil, diesel, and natural gas which are used generally in water heaters and pumps, were responsible for the remaining ca.12% of CO_2 emission. The studies of Liu and his coworkers (2011) and Lin (2010) showed that transportation is the major contributor for energy consumption and carbon emission for tourism industry in Western China and Taiwan's national parks, respectively. Additionally, Kuo and Chen (2009) investigated the energy use and CO_2 emission from Penghu Island tourism and also reported that transportation sector consumes the largest energy of 4.95×10^8 MJ, followed by recreation activity (1.24×10^8 MJ) and accommodation (1.17×10^8 MJ). In contrast, the emissions from transportation within Penghu Island is relatively small (only 11%).

In addition, there are several research focused on CO_2 emission from waste disposal (Saito, 2013; Kuo and Chen, 2009). Kuo and Chen (2009) studied the environmental loads from water pollution and solid waste produced using life cycle assessment approach. The results showed that environmental loads from transportation, accommodation, and recreation activity sectors discharged 416 L of wastewater and 1.95 kg of solid waste per tourist per day. These levels are very much higher than those from local people. Important indicators for carbon emission include energy consumption such as electricity and fossil fuel uses, water demand, solid waste generation and wastewater discharge. The most common sectors accounted for CO_2 emission in tourism are transportation, accommodation, and

tourist activities (Michailidou et al., 2015, Tsai et al., 2014; and Dwyer et al., 2010). Other elements accounted for tourism consumption are equipment hiring and cultural and recreational services (Jones and Munday, 2007; Becken and Patterson, 2006). It should also be noted that resource consumption may also be affected by geographic locations and types of tourism where activities are taking place.

The main purpose of this study is to assess CO2 emissions from tourism sector in the local designated communities of Thailand. The baseline CO_2 emissions were estimated for each resource consumption and waste generation. The estimation provided fundamental ground for further development of community-based low carbon tourism in Thailand.

2. Overview of Tourism in Thailand

Thailand has seen an ascending growth of tourism over the last five years. According to data collected by the Department of Tourism (2014), international tourist arrivals to Thailand have risen from 15,936,400 (2010) to 24,779,768 (2014) or approximately 56% within five years. This is due to its rich natural resources and diverse tourism promotion activities, leading Thailand to be a tourist attractive destination from people around the world. Most of the tourism activities are based on natural, coastal and cultural tourisms. However, tourism has both positive and negative impacts on economic, social and environmental changes. Environmental impacts associated with tourism are natural resources consumption and GHG emissions. Tourism is responsible for about 5% of global CO_2 emissions (UNWTO, 2012).

CO_2 emissions from tourism sector are reported at different scales such as global, regional, national, and unitary. Yu-guo and Zhen-fang (2014) indicated that regional and unitary scales receive more attention to better understand the emission contribution of different activities in micro-scale such as community, town, city, or

province. Because of this, community-based tourism (CBT) was studied for sustainable tourism development. Tourism in the community of Thailand has grown for over the past decade with and without planning in reducing its impacts from natural resources consumption and CO_2 emission. In this study, a total of nine tourism destinations in three designated areas including Trat, Loei and Nan Provinces were selected with varying tourism assets and activities (Fig.1). All selected areas have the potential to produce high CO_2 emission. This is due to numerous tourist activities and appealing natural attractions. As CO_2 emission also depend upon geographic locations, unique local characteristics of the communities and type of tourism where the activities take place, their estimations may highly vary from place to place. The three designated locations in this study represent distinct types of tourism which are coastal tourism for Trat communities, nature-based tourism for Loei community and cultural tourism for Nan communities.

Fig.1 Map of Thailand and the locations of the selected areas

3. Methodology

There are several methods for estimating CO_2 emission which includes bottom-up approach, top-down approach, life-cycle assessment (LCA), questionnaire and scenario analysis, the Intergovernmental Panel on Climate Change (IPCC) Method (Yu-Guo and Zhen-Fang, 2014; Liu et al., 2011; Kuo and Chen, 2009). This study used integrated approach to estimate CO_2 emission of communities. The following describes key elements of the estimation.

3.1 Study areas

The selected areas are areas under the responsibility of the Designated Areas for Sustainable Tourism Administration (DASTA, public organization) which are the targeted destination to promote community-based low carbon tourism (CBT). They are Trat, Loei, and Nan Provinces, representing coastal, nature-based, and cultural tourisms, respectively. On-site survey and interviews were conducted with key stakeholder representatives such as enterprises and local governments in January 2014. Nine communities in these three designated areas were visited. The main objective of this process is to understand the baseline information about the study areas and the emission contribution from different tourism activities within the communities so that questionnaire can be designed. The study areas, total areas, and number of population and tourists in each community are listed in Table 1. Trat area comprises of three main and 49 smaller islands with 10% mainland, which is located in the Eastern part of Thailand, close to the Thai-Cambodian border. There are three communities selected as representatives of CBT in Trat Province including Lame Glad (T1), Bang Bao (T2) and Koh Mak (T3) communities. In Loei Province, Phuan Pu (L1) is the only one community selected. Phuan Pu is located in the northeast with its numerous high hills and mountains. In case of Nan Province, five communities including Boh Suak (N1), Ban Maha Pho (N2), Ban Chang Kum (N3), Ban Hua Khuang (N4)

and Phumin Thali (N5) were estimated for CO2 emission. Nan is one of the oldest towns in Thailand located at the northern tip.

Table 1 Background information of target communities for CBT

No.	Community	Province	Size (km^2)	Registered Population	Number of Tourists per Year
1	Lame Glad		82	6,875	10,000
2	Bang Bao	Trat	93	2,747	324,394
3	Koh Mak		16	600	92,103
4	Phuan Pu	Loei	200	9,876	142,007
5	Boh Suak	Nan	29	6,554	10,961
6	Ban Maha Pho		7.6	61,563	2,340
7	Ban Chang Kum				68,741
8	Ban Hua Khuang				140,063
9	Ban PhuminThali				164,563

3.2 Emission sources

Indicators used for emission estimation in small scale may be different from large scale. In tourism sector, there are many energy sources, among which coal, oil, gas, and electricity are usually dominant. The consumption of energy and electricity are major sources of the total energy consumption in tourism sector. Based on the information obtained during field survey, four energy sources were considered which are oil, gas, firewood and electricity. In addition, carbon emissions associated with water consumption and waste generation were included. The baseline information was collected on major resources (energy and water consumption) and waste generation from six activities and services including accommodations, tourist attractions

and learning centers, tourism and recreational activities, transportation, tourist information and service centers, and products manufacturing for tourism. In each activity and service, the main source of CO_2 emission includes electricity consumption, transportation fuel, thermal energy, water use, and waste and wastewater generation.

3.3 Data collection

Samples were collected by using questionnaire. Participants who provided the potential responses were asked for supporting information, wherever applicable, in three main parts; (1) general information (such as year founded, number of employees, land cover, number of guest rooms, number of visitors, and travel seasons), (2) inputs (electricity, fuel, gas and water consumption), and (3) outputs (wastes and wastewater). The questionnaire surveys were conducted during March-August 2014. Sixty three samples were collected from six sectors with sampling ratios of 44.4% for accommodations, 15.9% for tourist attractions and learning centers, 23.8% for tourism and recreational activities, 4.8% for transportation, 6.3% for tourist information and service centers, and 4.8% for manufacturing products for tourism. In each enterprise, survey participants were asked to answer quantitative questions regarding electricity, fuel, gas, firewood and water on the basis of their bills from the most recent (January–December 2013) 12-month period and records indicating waste disposal or recycling from most recent period.

3.4 Estimation of carbon emission

Estimations of carbon emission was based on the method introduced by IPCC. Specific activity data and emission factors were used to estimate the emissions. With respect to the calculation of energy related carbon emission, the carbon emission coefficients of different energy resources as well as water consumption and waste management are needed (Table 2). The following formula was used to estimate the carbon emission (Equation (1)).

$$\text{CO}_2 \text{ emission (kg CO}_2/\text{units)} = \qquad (1)$$

AD = Activity data (units), CF = Coefficient of carbon emission of i,
n = Type of activity, m = Type of emission

Table 2 Coefficients of carbon emission for different categories of emission sources

Categories of emission sources	Type	Coefficient of carbon emission	Units
Energy use (for transportation fuel and thermal)	Benzene	0.06931	kg CO2/MJ
	Gasohol E10	0.0624*	kg CO2/MJ
	Gasohol E20	0.0555*	kg CO2/MJ
	Gasohol E85	0.0104*	kg CO2/MJ
	Diesel B3	0.0718*	kg CO2/MJ
	Natural gas	0.0631[1]	kg CO2/MJ
	Firewood	0.0889[2]	kg CO2/MJ
Electricity use	Electricity	0.0556[3]	kg CO2/kW-h
		0.6400**	kg CO2/kW-h
Waste management	Landfill	0.8421[1]	kg CO2 eq/kg waste
	Open dump	0.1436[1]	kg CO2 eq/kg waste
Water consumption	Tap water	0.0264[4]	kg CO2 eq/m^3
Wastewater treatment	Latrine	0.9702***	kg CO2 eq/m^3

Note *Calculate from ratio of gasoline and diesel which is the composition of each fuel type. For instance, the emissions factor for E10 (gasohol), which is 90 percent motor gasoline and 10 percent ethanol, is calculated by multiplying the motor gasoline emissions factor by 0.90, and assumes zero emissions from ethanol.

 ** Specific emission coefficient of Koh Mak community

 *** Calculate from default value of BOD which is 154 mg/L and methane conversion factors for Latrine equal to 0.3 kg CH4/kg BOD

 [1] IPCC (2006), 2The Climate Registry (2014) 3EPPO (2014), and 4TGO (2010)

4. Results

The study accounted for a total of five main sectors in tourism contributing to carbon emission including accommodations, tourist attractions and learning centers, tourism and recreational activities, tourist information and service centers, and specific sectors which refer to transportation and products manufacturing for tourism. It should be noted that the total emission amounts reported for each sector were based on the number of samples used for the analysis which varied for each sector. It neither represents the actual emissions of the sectors nor provides comparative results for each sector.
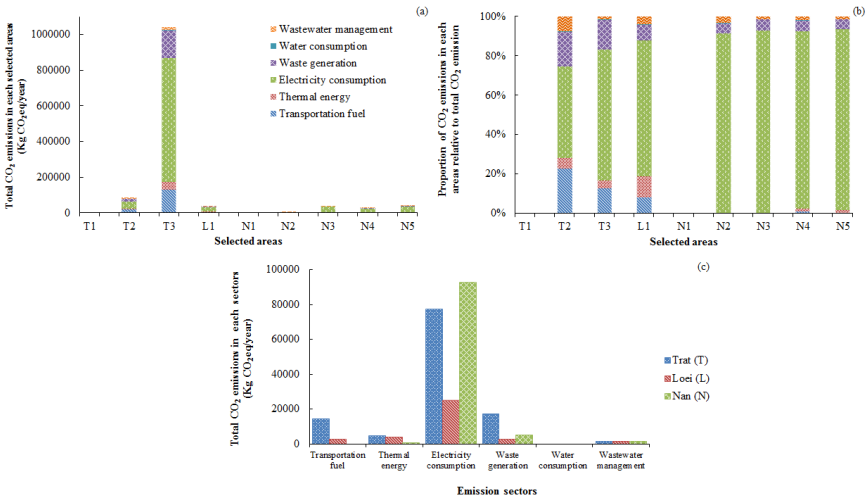
4.1 CO_2 emissions from accommodation sector

Fig.2 The amount and proportion of CO2 emission from accommodation sector in tourism for each community

The results indicated that the electricity usage is the main contributor to the accommodation sector, especially, for communities in Nan. The proportion of CO_2 emission in each area in relation to total CO_2 emission were approximately 56%, 69% and 92% on the average for Trat, Loei and Nan areas, respectively (Fig.2 (b)). However, the emitted CO_2 amounts caused by the electricity consumption in communities of Trat areas were higher than those of other areas. This is due to the fact that it is an island. Moreover, the electricity in Koh Mak community (T3) relies on thermal power plants. The CO_2 emission coefficient of 0.64 kg-CO_2/kWh in Koh Mak community is higher than the values of other communities; therefore, the high amount of electricity usage in accommodation produces large amounts of CO_2 emissions (Fig.2 (a)). Other forms of energy consumption such as diesel and natural gas, used generally in transportation and thermal energy for cooking, were responsible for 17% and 5%, respectively, for tourist accommodation within Trat communities. In case of Phuan Pu community in Loei Province, the second largest source of CO_2 emission was responsible for the thermal energy with contribution of 3,882 kg CO_2eq /year or 11% of total CO_2 emission (Fig.2 (c)). In addition, tourists also produce solid waste and wastewater resulting in the CO_2 emission from waste and wastewater management. About 16% of CO_2 emission was obtained from solid waste management in Trat communities which was higher than those of other areas.

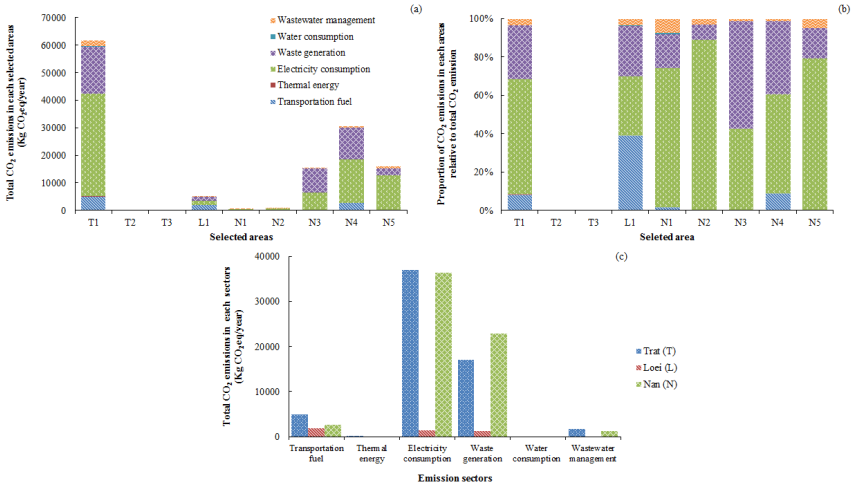## 4.2 CO_2 emissions in tourist attractions and learning centers sector

Fig.3 The amount and proportion of CO_2 emission in tourist attractions and learning centers sector for each community

As seen in Fig. 3, electricity consumption and waste generation by tourist attractions and learning centers are the significant sources of emission. As expected, Phuan Pu community representing nature-based tourism showed the lowest amount of CO_2 emission. Tourist attractions and learning centers in Phuan Pu community are mostly related to sustainable agriculture practices which consumed low amount of energy and generated small amount of wastes accounted for 1,556 and 1,342 kg CO_2eq /year, respectively. For Nan communities representing cultural tourism, most of tourist attractions and learning centers were temples which showed high CO_2 emission with 67% of total CO_2 emission in electricity consumption (e.g. lighting and appliances) followed by 27% of total CO_2 emission in waste generation (Fig.3 (b)). High electricity consumption was due to decoration for tourist

attractions, especially at night. Within the three destinations of tourism, Trat communities showed the highest CO2 emission with 61,633.67 kg CO_2eq/year (Fig. 3 (a)). This is mainly from Lame Glad community which is the only community with the tourist attractions and learning centers sample. The high emissions were mainly from electricity consumption, waste generation, transportation, and waste management (Fig. 3 (c)).

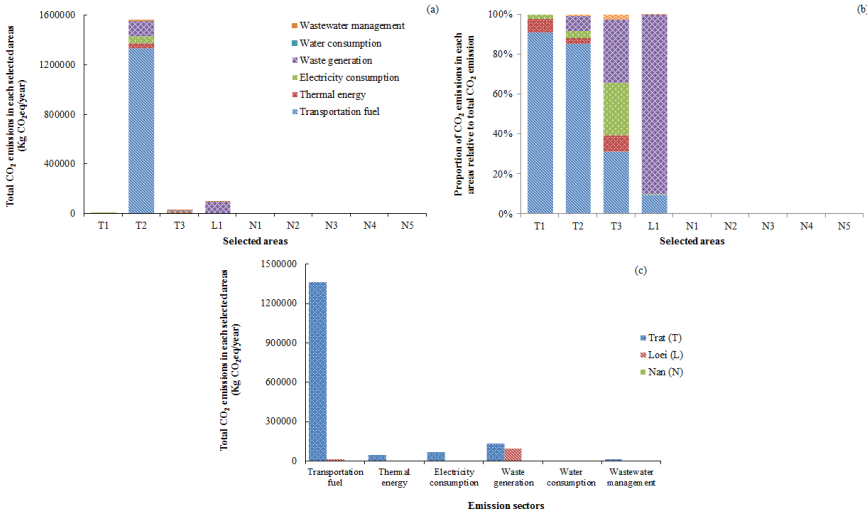### 4.3 CO_2 emissions in recreation activity sector

Fig.4 The amount and proportion of CO_2 emission in recreation activity sector for each community

Samples with recreation activities were only available in Trat and Loei communities, but not Nan. Likewise many other coastal tourist industry, recreation activities depend very much on boat travelling, thereby causing high fuel consumptions and emission from

transportation as seen in Fig.4 (a and c). In Lame Ngad (T1) and Bang Bao communities (T2) of Trat area, recreation activities were mainly boat fishing, snuggle and scuba diving and food services. For Koh Mak (T3), recreation activities were mostly offered inland or near shore line, thus fuel used for activity services was less. As an overall, the main contributor of carbon emission in coastal tourism was found to be fuel consumption for transportation in relation to activity services. In case of Phuan Pu community in Loei, the recreation activities are mostly green activities such as hiking and nature trails, except for one activity for sightseeing by farm tractor called "E-Taen". Due to the nature-based tourism activities, the emissions were relatively low compared to other areas. Waste generation from tourists is the largest source of CO_2 emission with 90% of total CO_2 emission (Fig.4 (b)). Emission from transportation fuel was minor because the activity was still in a small group.

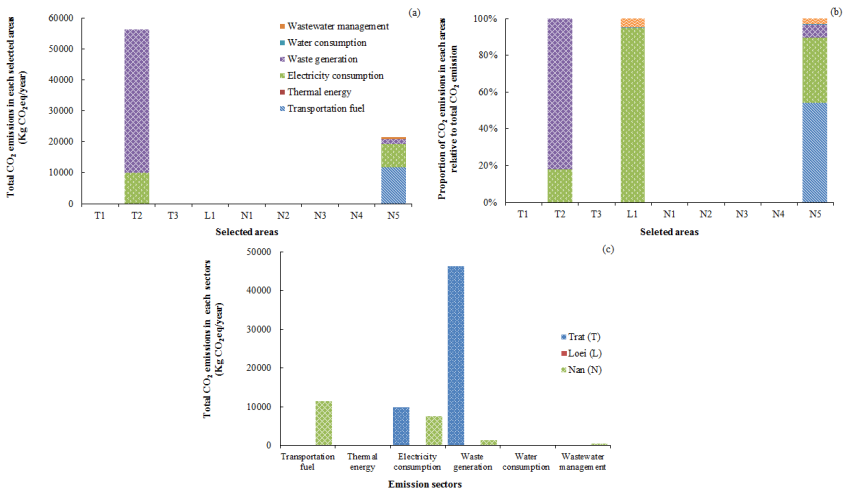## 4.4 CO_2 emissions in tourist information and service centers sector

Fig.5 The amount and proportion of CO_2 emission in tourist information and service centers sector

Although tourist attractions and learning centers were available in all designated areas, emissions were accounted for only in Trat and Nan areas. This was because emission in Loei was very low due to limited activities offered. According to Fig.5, the main sources of CO_2 emission in tourist attractions and learning centers sector were from electricity consumption and waste generation. The emission pattern of tourist information and service centers sector was different in each area. Main emissions for Trat, Loei and Nan areas were initiated from waste generation, electricity consumption and transportation fuel, respectively. Waste generation is the largest source of CO_2 emission in Bang Bao community. Whereas nearly 97 percent of CO_2 emission in Loei was accounted for electricity consumption. For Phumin Thali community in Nan province, the transportation fuel and electricity consumption were accounted for 55 and 28 percent of total CO_2 emissions, mainly from sightseeing trip and offered bus services. The results indicated that the significant source of emission for tourist information and service centers sector were based on a tourist service-based activity.

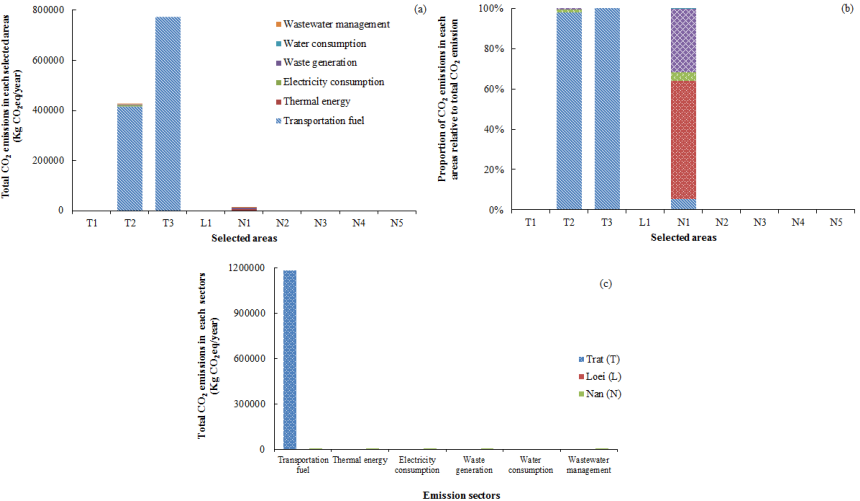## 4.5 CO_2 emissions in specific sectors

Fig.6 The amount and proportion of CO2 emission in specific sectors

Specific sectors included the transportation and products manufacturing for tourism which were estimated only in Trat and Nan Provinces, respectively. Based on the samples used for estimation, transportation sector consumed the largest energy with 770,903 and 423,923 kg CO_2 eq/year, for Bang Bao and Koh Mak communities, respectively (Fig.6 (a)). This was due to the fact that boat was the main transportation service in island area of Bang Bao and Koh Mak communities. The amount of CO_2 emitted by products manufacturing for tourism sector was estimated only for Boh Suak community in Nan Province. This community is renowned for its local fabric weaving and pottery. Energy consumption was used for weaving process and pottery. About 59% of total CO_2 emission was emitted from thermal energy usage for incinerator which showed largest CO_2 emission with 7,124 kg CO_2 eq/year in this sector (Fig.6 (a) and (b)). However, this is a relatively small amount when compared to Koh Mak community (Fig.6 (c)). In addition, resource and energy consumptions in weaving process included transportation fuel, electricity and water as well as waste generation. The CO_2 emission from waste management is 3,839 kg CO_2 eq/year and it is about 32% of total emission.

5. Conclusion

The estimates showed that electricity consumption is the major contributor for carbon emission in accommodations as well as for tourist attractions and learning centers. For recreational activities and transportation, transportation fuel showed the highest CO_2 emissions of all. In addition, waste generation accounted for the most CO_2 emission in tourist services. Among six consumption activities affecting carbon emission in tourism, transportation fuel and thermal energy were found to be the main sources of carbon emission. Water use and wastewater management were found to be insignificant sources of carbon emission. The obtained baselines can be used as a reference point for carbon reduction in the designated areas. Thus, implementation

plans and measures can be introduced with expected carbon reduction. It should also be noted that the estimation of CO_2 emission in this study depended on several factors- at first, the CO_2 emission estimate was based on selected or representative samples of the sources, the second factor was information collected from both primary and secondary sources depending on interviews, questionnaire surveys, and documents obtained.

References

Becken, S., and Patterson, M. (2006), Measuring national carbon dioxide emissions from tourism as a key step towards achieving sustainable tourism, *Journal of Sustainable Tourism,* 14(4), 323-338.

Department of Tourism, Ministry of Tourism and Sports, Thailand (2014), Summary of tourism situation 2014, pp.44. Official website: http://www.tourism.go.th/home/content (last visited April 2015).

Dwyer, L., Forsyth, P., Spurr, R., and Hoque, S. (2010), Estimating the carbon footprint of Australian tourism, *Journal of Sustainable Tourism,* 18(3), 355-376.

Energy Policy and Planning Office (EPPO), Ministry of Energy, Thailand (2014), Official website: www.eppo.go.th/info/index-statistics.html (last visited May 2014).

International Panel on Climate Change (IPCC) (2006), Guidelines for National Greenhouse Gas Inventory, Volume 1 General Guidance and Reporting, IPCC National Greenhouse Gas Inventories Programme.

Jones, C., and Munday, M. (2007), Exploring the environmental consequences of tourism: A satellite account approach, *Journal of Travel Research,* 46(2), 164-172.

Kuo, N.W., and Chen, P.H. (2009), Quantifying energy use, carbon dioxide emission, and other environmental loads from island tourism based on a life cycle assessment approach, Journal of Cleaner Production, 17(15), 1324-1330.

Lin, T. P. (2010). Carbon dioxide emissions from transport in Taiwan's national parks, *Tourism Management,* 31, 285-290.

Liu, J., Feng, T., Yang, X. (2011), The energy requirements and carbon dioxide emissions of tourism industry of Western China: A case of Chengdu city renewable and sustainable, *Energy Reviews,* 15, 2887-2894.

Michailidou, A.V., Vlachokostas, C., Moussiopoulos, N. (2015), A methodology to assess the overall environmental pressure attributed to tourism areas: A combined approach for typical all-sized hotels in Chalkidiki, Greece, *Ecological Indicators,* 50, 108–119.

Saito, O. (2013). Resource use and waste generation by the tourism industry on the Big Island of Hawaii, *Journal of Industrial Ecology,* 17(4), 578-589.

Thailand Greenhouse Gas Management Organization (Public Organization): TGO. (2011), Assessment of carbon footprint for organization, p.53.

The Climate Registry (2014), The Climate Registry's 2013 Default Emission Factors, The Climate Registry, Los Angeles , CA. Official website: www.theclimateregistry.org/ (last visited Aug 2014).

Tsai, K.T., Lin, T.P., Hwang, R.L., Huang, Y.J. (2014), Carbon dioxide emissions generated by energy consumption of hotels and homestay facilities in Taiwan, Tourism Management, 42, 13-21.

Yu-Guo, T., Zhen-Fang, H. (2014), Review of accounting for carbon dioxide emissions from tourism at different spatial scales, *Acta Ecologica Sinica,* 34,246-254.

United Nations Environment Programme and World Tourism Organization (2012), Tourism in the Green Economy – Background Report, UNWTO, Madrid.

Community-based low carbon tourism development in designated areas for promoting sustainable tourism in transitional developing countries[1]

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Abstract

A study to develop community-based low carbon tourism (CB-LCT), as a practical model to promote environmentally sustainable tourism, was carried out in designated areas for sustainable tourism in Thailand - representing transitional developing countries. A total of 9 tourism destinations were selected as cases with varying tourism assets and activities. The development of CB-LCT considered a combination of a set of criteria for community-based good practices, a simple method combining both top-down and bottom-up approaches

applied to assess carbon emissions before and after applying selected mitigation measures, with strong participation and support of different stakeholders and partners particularly at the local community level. The results of potential and actual reduction of carbon emissions are dependent on the cases and different tourism sectors and activities as well as mitigation measures. In terms of mitigation measures and the sectors, implementing energy efficiency enhancement measures in transportation vehicles, building operations and product manufacturing could provide higher percentage of carbon reduction in comparison with the baseline emissions. In addition, waste reduction and recycling could be considered as a basic mitigation measure with high potential for the success as part of CB-LCT, although carbon reduction level was comparatively low. The lessons learned from these cases could be potentially used for developing and implementing CB-LCT in other areas, particularly in transitional countries.

Keywords: Climate change, Community-based development, Low carbon tourism, Mitigation measures

1. Introduction

Tourism industry has played an important role in the growth of Thailand's transitional economy. According to the World Travel and Tourism Council (WTTC), travel and tourism directly contributed 1,074 billion THB[7] or 9% of total Gross Domestic Product (GDP) of the country. The increasing number of 2,046.7 billion THB or 10.4% of total GDP is expected to rise continuously until around 2024. In addition, it was also reported that the values estimated from international tourists visiting Thailand would double from 1,380.5 billion THB in 2014 to 2,784.8 billion THB in 2024 (WTTC, 2014). The increasing rate of tourists

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[7] Approximately THB 32 = USD 1.

can cause negative impacts on socioeconomic and environmental conditions, such as natural exploitation, unequal income distribution and solid waste management problems. However, the impacts of tourism depends on the number and nature of tourists and the characteristics of the sites. Thus, promoting economic growth is challenged with protecting its natural resources. It is well known that tourism sector, including its activities, is accompanied with greenhouse gas emission, especially, carbon dioxide (CO_2), which plays a larger role in climate change. It is estimated the sector contributes 5% of global CO_2 emission (UNWTO, 2007).

There have been studies of estimating CO_2 emission from energy consumption in the accommodation, transportation and activity of tourists (Kuo and Chen, 2009; Liu et al., 2011; Lin 2010; Tsai et al., 2014). To avoid adverse impacts, developing community-based low carbon tourism (CB-LCT) is an alternative way for the promotion of sustainable tourism, as the community-level approach allows for the design of policies and practices that can lead to sustainable tourism. However, in community area, most of the tourism is mainly made up of small enterprises. If they are not well managed, these could lead to high carbon emissions. The different implementation strategies are to be taken at different levels and various measures which would usually aim at reducing carbon emission.

In this study, CB-LCT was developed as a practical way to promote sustainable tourism in Thailand representing a transitional developing stage. This paper presents part of the study results as well as lessons learned from three designated areas including Trat, Loei and Nan provinces in Thailand. A total of 9 tourism destinations were selected as cases with varying tourism assets and activities. Mitigation measures were selected and implemented in the cases and then evaluated. The research was conducted during January – October 2014.

2. Literature review

This section of literature review covers the topics in relation to the objectives and scope of this paper. LCT can be linked with sustainable tourism, with a focus and as part of community-based development. Good practices and relevant cases were also reviewed in order to be possibly applied and/or compared with the cases in this study.

2.1 Low carbon tourism

Low carbon society is a concept that refers to an economy which has a minimal output of GHG emissions into the ecosphere, especially, CO_2. In tourism sector, sources of emissions include direct CO_2 emissions, i.e., energy consumption, and indirect CO_2 emissions, i.e., electricity usage and waste disposal. Thus, LCT focuses on development pathways that enhance energy efficiency, less consumption of natural resources and hence less environmental pollution. The low carbon promoting strategies in tourism industry could utilize the benefits of LCT to enhance its competitive advantage. Development strategies for low-carbon hotels have been launched in many countries, such as the guidelines including criteria and indicators for measuring resource use and carbon emissions of hotels and related enterprises were studied for low carbon hotels in Koh Chang and neighboring islands, Thailand (Nitisoravut et al., 2014), developing energy conservation and carbon reduction indicators for the hotel industry in Taiwan (Teng et al., 2012) and energy benchmarking in support of low carbon hotels: developments, challenges, and approaches in China (Chan, 2012). In addition to hotels, other related activities provided for tourists should base on low or zero emission such as bicycle touring, kayak, canoe and sailing boat.

2.2 Sustainable tourism

In general, sustainable development has been described in terms of three dimensions including society, economy and ecology. The study by Sharpley (2009) reported that sustainable tourism emphasized preservation of natural resources and conservation of the socio-cultural aspect of the area, rather than focusing on tourism's contribution to the sustainable development of the area. According the United Nations World Tourism Organization (UNWTO), the sustainable tourism focuses on socio-cultural, economic, and environmental sustainability. Sustainable tourism is a tourism activity committed to generating a low impact on the environment and community, in which everyone involved should act responsibly, such as local community, tourism businesses and visitors. For example, a green hotel that operated through good practices in water and energy use conservation (Bohdanowicz et al, 2001), environmentally sustainable purchasing policies and waste minimization (Radwan et al., 2010). In addition, Njoroge (2014) indicated that an enhanced regional tourism sustainable adaptation framework is required to contribute into the sustainable adaptation discourse and provide a practical tool for sustainable adaptation.

2.3 Community-based development

Community-based tourism (CBT) is generally small scale tourism and most of the tourism is composed of small enterprises by local people. Recently, a growing number of CBT received attention as a tool for a sustainable and responsible form of tourism. The development in CBT has positive impacts on social, economic, and environmental conditions of the communities (Johnson, 2010). However, the success of CBT depends on various factors, such as the attractiveness of tourism resources, strong leadership and community participation. Tolkach et al. (2015) reported that the source of funding, leadership and power balance are among the major success factors in a new resource-based island nation. In addition, Kontogeorgopoulos

et al. (2014) reported that the fortunate geographical conditions, external support, and transformational leadership represent the most important determinants of the success for CBT. More importantly, conceptual framework for community participation in rural tourism was studied by Prabhakaran et al. (2014), they showed that community can play a part in the decision-making and in the sharing of tourism benefits. This finding is consistent with previous studies indicating that local community is an important stakeholder in rural tourism. The community can help them to develop effective rural tourism strategies which provided sustainable community (Falak et al., 2014).

2.4 Good practices and relevant cases for estimating carbon emissions and implementing mitigation measures at local or community level

CBT in local areas is typically dependent on tourism activities that are natural resource based. Thus, the different implementation strategies are to be taken at different specific area or community levels and various approaches which usually aimed at reducing carbon emission. For example, in specific area of Taiwan's national parks, tourists switching from private cars to tour buses effectively decreased CO_2 emissions by 22% in transportation sector (Lin, 2010). Tsai et al. (2014) reported the effective mitigation strategies for tourist accommodation including tourist decision-making, hotel industry energy saving, and governmental control. A potential reduction was estimated for Nakanoshima culture area, Japan with available technologies and measures in energy usage for heating and it revealed that 65% of the emission can be reduced (Yamaguchi, et al., 2013). High level of emission reduction was also achieved from Tainan city with energy conservation at departmental stores and applying energy-conserving light sources at Ta-Tien-Hou temple. The results showed that carbon emissions were reduced to 1,176,792 kg (56.1%) and 148,016 kg (96.0%) per year, respectively (Chen et al., 2012).

As shown in Table 1, England's first carbon neutral community of Aston Hayes demonstrated 23% of emission reduction and 50% of energy consumption reduction after adopting renewable solar energy and energy-efficient lighting and reducing energy consumption. In addition, Eco-Model City Initiatives of Kyoto City achieved overall 40% target with implementation of mitigation measures to reduce plastic bags use, reduce energy consumption and add walking program for travel. Another case study is Pinglin District, New Taipei City in Taiwan showed 8.5 million Kg CO_2 eq. of emission reduction with application of three main mitigation measures, which were, change from minibus to an electric golf car, additional natural route and reducing plastic bags use and use of disposable tableware.

Local efforts to monitor and mitigate greenhouse gas emissions which was a case study from the University Park campus of Penn State University studied by Nagle and Steuer (2006) indicated that behavioral change is a necessary component for emission reduction. In addition to the existing action plan, a major shift in thinking is required for energy practices among small- and medium-sized tourism enterprises (Coles et al., 2014). In Thailand, most studies related to CBT focused on the guidelines on developing CBT to sustainable management (Chumsri et al., 2015) for example, the success factors in CBT (Kontogeorgopoulos et al., 2014, Nitikasetsoontorn, 2015) and plan to design and develop strategies for CBT (Pookaiyaudom, 2012).

In addition, German International Cooperation (GIZ) and DASTA (2012) also proposed the guidelines on low carbon destination for tourism management in Thailand which were based on Philosophy of Sufficiency Economy. These included sufficiency tourism development and tourism environmental & conservation, sufficiency tourism business, sufficient tourism marketing, community–based tourism in order to reduce CO_2 emission.

Table 1 Review of case studies for estimating carbon emissions and implementing mitigation measures at local or community level

Community	Location	Participants	Objective and duration	Mitigation measures	% Emission reduction
Aston Hayes (http://www. goingcarbon neutral.co.uk/)	Cheshire West and Chester, United Kingdom	• Local community • Local government • Local Enterprise	England's first carbon neutral community (November 2005 – curently)	• Adopting renewable solar energy • Adopting energy-efficient lighting • Reducing energy consumption	23% emission reduction and 50% energy consumption reduction
Pinglin (Fang, 2011)	New Taipei City, Taiwan	• Local community • Local Enterprise	To examine the impacts of the Pinglin Low Carbon Tourism initiative, and their influence on the development of an low carbon communities in Pinglin (2006-2010)	• changing from minibus to an electric golf car • Additional natural route • Reducing plastic bags use and use disposable tableware	8.5 million Kg CO_2 eq of emission reduction
Kyoto (Kadokawa, 2009)	Kyoto, Japan	• Local community • Local Enterprise	Eco-Model City Initiatives - Kyoto City (1990-2030)	• Walking program for travel • Reducing plastic bags use • Reducing energy consumption	To achieve the overall 40% target

3. Methodology

3.1 Methodological framework

In order to achieve the objectives of the study, methodological framework was developed as given in Fig.1. The process began with a review of literature and related documents providing the guidelines for assessment in order to prepare action plan. Both top-down and bottom-up approaches including workshop with Designated Areas for Sustainable Tourism Administration (DASTA) officers from central and local areas were employed for identifying potential community based tourism development and tourism activities. In the second step, the survey method was employed with questionnaires and interviews. Data analysis was done to mainly estimate baseline emission and also for proposing emission reduction activities. In the last step, the process included monitoring the implementation of selected mitigation measures, evaluation of the emission reduction per emission sources, mitigation measures and communities.

Step 1 Reviewing the documents and preparing action plan
• Identifying potential of community based tourism development
• Identifying tourism activity for estimating baseline emission
• Workshop and action plan
• Questionnaire design

$$\downarrow$$

Step 2 Database collection and proposing emissions reduction activities
• Site survey and kick off
• Questionnaire interview and computing data input for estimating baseline emission
• Workshop and mitigation measure selection with local governments and enterprises
• Monitoring and follow-up plan

$$\downarrow$$

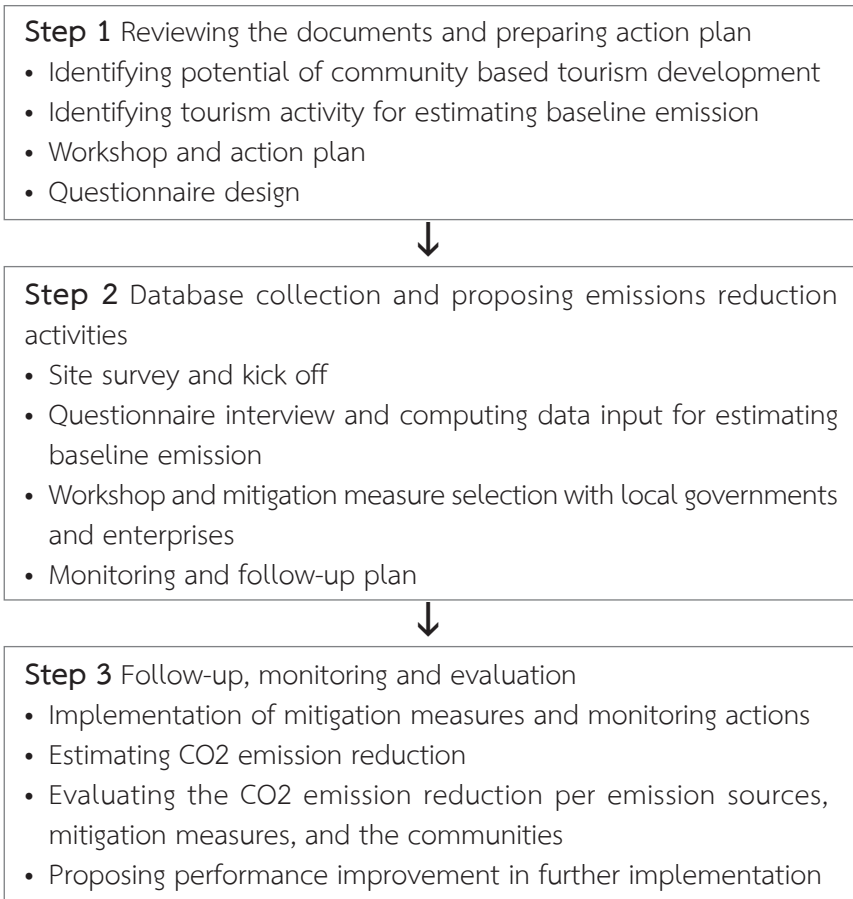| **Step 3** Follow-up, monitoring and evaluation |
| :-- |
| • Implementation of mitigation measures and monitoring actions |
| • Estimating CO_2 emission reduction |
| • Evaluating the CO_2 emission reduction per emission sources, mitigation measures, and the communities |
| • Proposing performance improvement in further implementation |

Fig. 1 Methodological framework

3.2 Study area

The study covers 3 designated areas in Trat, Loei and Nan provinces selected by DASTA to promote CB-LCT. Fig. 2 presents geographic locations and types of tourism of the selected areas. Targeted communities in the provinces were identified by consultations with DASTA, workshops, on-site observations and interviews with the key stakeholders. A total of 9 communities were finally selected.

Nan is one of the oldest towns of Thailand, located at the northern tip. Most of the tourism activities are based on culture tourism such as temples and museums.

Loei is located in the northeast with its numerous high hills and mountains. Major tourist attractions in the province are based on natural activities.

Trat area comprises three main and 49 smaller islands with 10% of its mainland located in the Eastern part of Thailand, close to the Cambodian border. Trat is one of the most well-known area for coastal tourism.
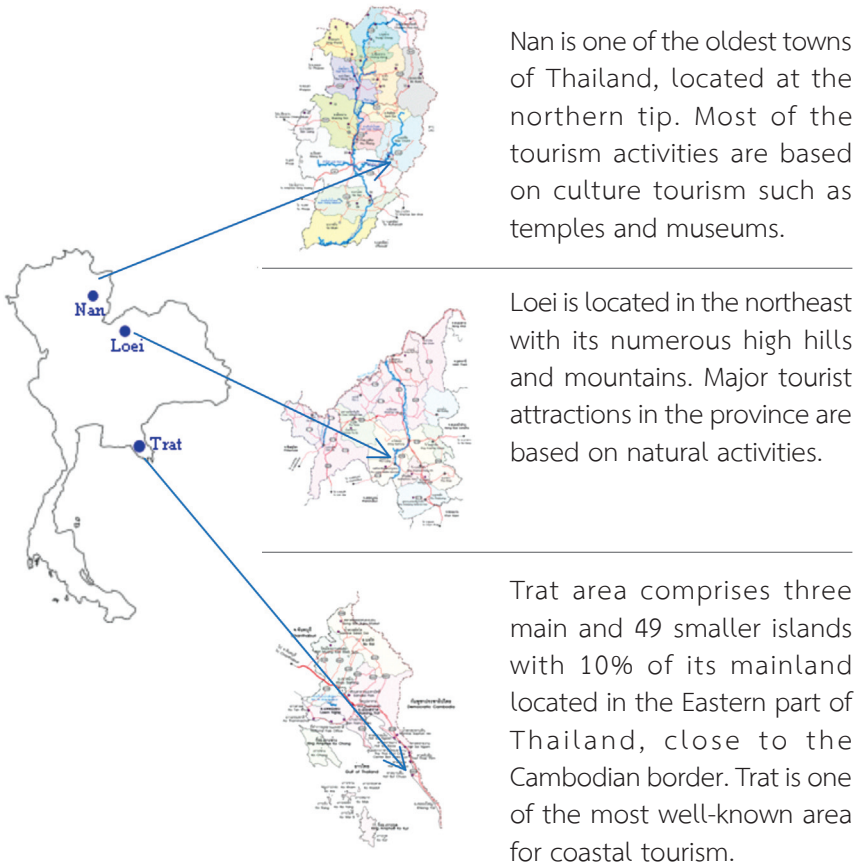
Fig.2 Locations of the selected areas with major tourist attractions

3.3 Specific methods

3.3.1 Data collection

Secondary data were obtained from tourism related-tourism organizations and local government offices. Primary data were collected through conducting interviews and questionnaire surveys, group discussions and local workshops. Participants who provided potential response were asked for more supporting information. A total of 63 samples were identified covering six sectors of tourism including accommodations (AC), tourist attractions and learning centers (TL), tourism and recreational activities (TR), transportation (T), tourist information and service centers (TS), and manufacturing products for tourism (M). In each of the communities, the main sources of CO2 emission included electricity consumption (E), transportation fuel (TF), thermal energy (TE), water consumption (WC), and waste generation (W) and wastewater treatment (WT). As shown in Table 2, tourism sectors were explained for the characteristics of tourism activities in each community which were responsible for CO_2 emission.

3.3.2 Mitigation measures selection and evaluation of emission reduction

The analysis of potential mitigation measures for CO_2 emissions in community level are based on a literature review, data from baseline emission and on the expert knowledge and community/enterprises participants. In this study, six mitigation measures consisting the adapting or training of renewable solar energy and energy-efficient lighting, changing to less CO_2 intensive fuel, increasing the recyclable collection, and improving thermal efficiency of incinerator were implemented in specific locations of the communities. After short-term implementation of the mitigation measures, 28 samples were investigated using same questionnaire as in the baseline assessment. The estimated baseline emissions were used as a reference point for comparing CO_2 emission before and after implementing the selected mitigation measures.

Table 2 Tourism activities with their established sectors of selected communities

Communities	Activities	Established sectors in tourism					
		AC	TL	TR	T	TS	M
Lame Glad (T1)	Site visit place and Marine crab culture		●				
	Dolphin/Firefly/Jellyfish watching			●			
Bang Bao (T2)	Hotel, resort and Homestay	●					
	Snorkeling, diving and Restaurant			●			
	Boat transfer				●		
	Bridge Publication					●	
Koh Mak (T3)	Hotel, Resort and Homestay	●					
	Restaurant			●			
	Boat transfer				●		
Phuan Pu (L1)	Resort and Homestay	●					
	Agriculture learning center		●				
	Guided walking tours on cave and stone mountain			●			
	Tourist information and service center					●	
Boh Suak (N1)	Local private Museum		●				
	Pottery production/fabric weaving/ traditional sugarcane pressing machine						●
Ban Maha Pho (N2)	Homestay	●					
	Temple		●				
Ban Chang Kum (N3)	Hotel	●					
	Temple		●				
Ban Hua Khuang (N4)	Hotel and Homestay	●					
	Temple		●				
Ban Phumin Thali (N5)	Hotel	●					
	National museum		●				
	Tourist information and service center					●	

4. Results and discussions

4.1 Baseline carbon emissions

In this study, the estimated baseline emissions are presented for three main emission sources including energy consumption, waste and water management in order to identify the mitigation strategies for emission sources. The results showed the community baseline summary by areas in order to select the potential mitigation strategies.

In communities of Trat province, transportation fuel use is the largest source related to CO_2 emission from tourism and recreational activities and transportation for Bang Bao and Koh Mak communities, respectively. In terms of electricity consumption, accommodation in Koh Mak community showed large CO_2 emission of 0.69 million kg CO_2 eq/ year. For thermal energy, food services of accommodation and tourism and recreational activities were large emission sources with emission of 42,533 and 40,596 kg CO_2 eq/year for Koh Mak and Bang Bao communities, respectively. For waste generation, accommodation showed a high amount of 155,996 kg CO_2 eq/year for Koh Mak community. As per the result obtained from water consumption and wastewater management, accommodation is the large contributor for Koh Mak communities with 112 and 16,517 kg CO_2 eq/year, respectively. In case of Lame Glad community, the tourist attractions and learning centers sector showed the amount of emission from waste consumption and wastewater treatment at 193 and 1,889 kg CO_2 eq/year, respectively.

In Phuan Pu community of Loei province, main contributor of tourism and recreational activities sector was transportation fuel use which showed about 9,722 kg CO2eq/year. For thermal energy, only accommodation sector was accounted for 3,882 kg CO_2 eq/year. In addition, high proportions of 93% of total CO_2 emission or 25,175 kg CO_2 eq/year were also observed for electricity consumption. On the other hand, the estimated CO2 emission from both sectors of tourist

attractions and learning centers and the tourism and recreational activities were obtained at relatively low emission. In case of waste generation, the amount of 93,461 kg CO2 eq/year was estimated for tourism and recreational activities followed by accommodation and tourist attractions and learning centers, respectively. For water consumption and wastewater management, accommodation is the large contributor for Phuan Pu community. However, the amount of CO_2 emission from water consumption and wastewater management had no significant effect.

In case of transportation fuel use in Nan province, manufacturing product for tourism, tourist attractions and learning centers and, tourist information and service centers were accounted for being main contributors in Boh Suak community, Ban Hua Khuang community, and Phumin Thali community, respectively. For thermal energy, only manufacturing product for tourism was accounted for 7,123 kg CO_2 eq/year of emission in Boh Suak community. In electricity consumption source, in addition to accommodation, tourist attractions and learning centers were also significant contributors to CO_2 emission for communities in Nan province. For waste generation, most of the emission amounts were estimated from tourist attractions and learning centers. Ban Chang Kum, Ban Hua Khuang and Ban Phumin Thali communities are significant sources for CO_2 emission with 8,613, 11,624 and 2,553 kg CO_2 eq/year, respectively. The emissions of wastewater management showed a lower amount of emission of 478 kg CO_2 eq/year in Ban Hua Khuang community.

4.2 Development and selection of community-based mitigation measures

Selection of CO2 mitigation strategies were based on multi-criteria analysis including emission reduction potentials, coverage of tourism activities, community needs, community-based mitigation measures,

compatibility with environmental and social sustainability, time frames and/or periods for implementation, practicality of implementation, and cost effectiveness. After workshops in each of the area with community/enterprise participation, a list of mitigation measures was obtained. The selection of potential mitigation measures is done by a weighted average score that is given on a scale of 1 to 5; the higher the grade, the more suitable are the specific criteria under consideration. Appropriate mitigation measures were finally selected for piloting short-term implementation as shown in Table 3, which also includes key stakeholders of the implementation and carbon reduction potential.

In Trat province, the potential mitigation measure for reducing CO_2 emission was focused on changing the specific fuel use of boat fuel in Koh Mak community. E10 is the main transportation fuel which is used for boats in Koh Mak community. Thus, a mitigation measure for transportation fuel is the introduction of lower-emission fuel, i.e., E85. In addition, energy-efficient strategies were also implemented in Lame Glad and Bang Bao communities. In case of Loei province, waste generation is the main contributor to tourism and recreational activities sector followed by electricity consumption in accommodation sector. Thus, in Loei province, emission mitigation measures included separate and efficient collection of recyclables and adopting energy-efficient lighting and solar energy. For Nan province, the largest contributors were electricity consumption followed by waste generation for both sectors of accommodation and tourist attractions and learning centers; therefore these findings call for implementation of mitigation measures which are directed towards improving energy efficiency and increasing recyclable collection. In addition, improving thermal efficiency of incinerator was also implemented for reducing emission in manufacturing product for tourism sector.

4.3 Evaluation of carbon emissions after implementing selected mitigation measures

The reduction of emissions was evaluated after implementing the selected mitigation measures. The evaluation results showed that different mitigation measures resulted in different reduction in emissions. In this study, high efficient mitigation measures were observed with adopting renewable solar energy resulting in high emission reduction of 59% of the source or 18% of the tourist attractions and learning centers in Phuan Pu community (L1) (Fig. 3 (a)).

Table 3 Selected mitigation measures for implementation within each of the 9 communities and emission reduction after implementation

Communities	Stakeholders	Target samples (sector)	Mitigation measures (Emission source)	% Emission reduction	
				Of the source	Of the community
CB-LCT for coastal tourism in Trat province					
Lame Glad	▪ Local community	▪ Marine crab culture (TL)	▪ Adopting renewable solar energy (E)	0.66	0.17
Bang Bao	▪ Local enterprise	▪ Restaurant (TR)	▪ Improving transparent and energy-saving (E)	0.40	0.02
Koh Mak	▪ Local enterprise	▪ Boat transfer service (T)	▪ Changes in specific transportation boat fuel to E85 (TF)	52.00	19.30
CB-LCT for natural tourism in Loei province					
Phuan Pu	▪ Local community ▪ Local government ▪ Local enterprise	▪ Agricultural farm (TL) ▪ Tourist attraction (TR)	▪ Adopting renewable solar energy (E) ▪ Separate and efficient collection of recyclables (W)	59.00 3.00	2.60
CB-LCT for cultural tourism in Nan province					
Boh Suak		▪ Manufacturing process (M)	▪ Improving thermal efficiency of incinerator (TE)	46.00	25.57
Ban Maha Pho	▪ Local community	▪ Temples (TL)	▪ Adopting energy-efficient lighting (E)	13.00	4.20
Ban Chang Kum	▪ Local government	▪ Temples (TL)	▪ Separate and efficient collection of recyclables (W)	45.00	7.50
Ban Hua Khuang	▪ Local enterprise	▪ Museum (TL)	▪ Separate and efficient collection of recyclables (W)	17.00	4.00
Ban PhuminThali		▪ Temples (TL)	▪ Separate and efficient collection of recyclables (W)	46.00	1.70

In addition, changing to less CO_2 intensive fuels reduced approximately 52% of the emissions or 398,044 kg CO2eq/year from transportation in Koh Mak community (T3). Another high-intensity reduction target is improving the thermal efficiency of incinerator for manufacturing products for tourism which reduced CO2 emission up to 45% or 3,244 kg CO_2eq/year by emission source for Boh Suak community (N1). Whereas adopting energy-efficient lighting reduced emission from electricity consumption up to 12.7% by source of tourist attractions and learning centers in Ban Maha Pho (N2) community of Nan province. In terms of waste management, high impact mitigation strategy on emission reduction was found on tourist attractions and learning centers in communities of Nan province. The implementation of increasing the recyclable collection eliminated the intensity of CO_2 emissions with 17%, 45% and 47% for Ban Hua Khuang (N4), Ban Change Kum (N3) and Phumin Thali (N5) communities, respectively.

From Fig. 3(b), lower percentage reductions were observed for adopting energy-efficient solar energy and lighting in accommodation and tourism and recreational activity sectors with 0.2%, 0.3%, 0.7, 0.8% and 1.3 reduction in Phumin Thali (N5), Ban Hua Khuang (N4), Lame Glad (T1), Bang Bao (T2) and Phuan Pu (L1) communities, respectively. In addition, the results showed that 2.8% of CO2 emission can be eliminated by increasing the recyclable collection tourism and recreational activities in Phuan Pu (L1) community.
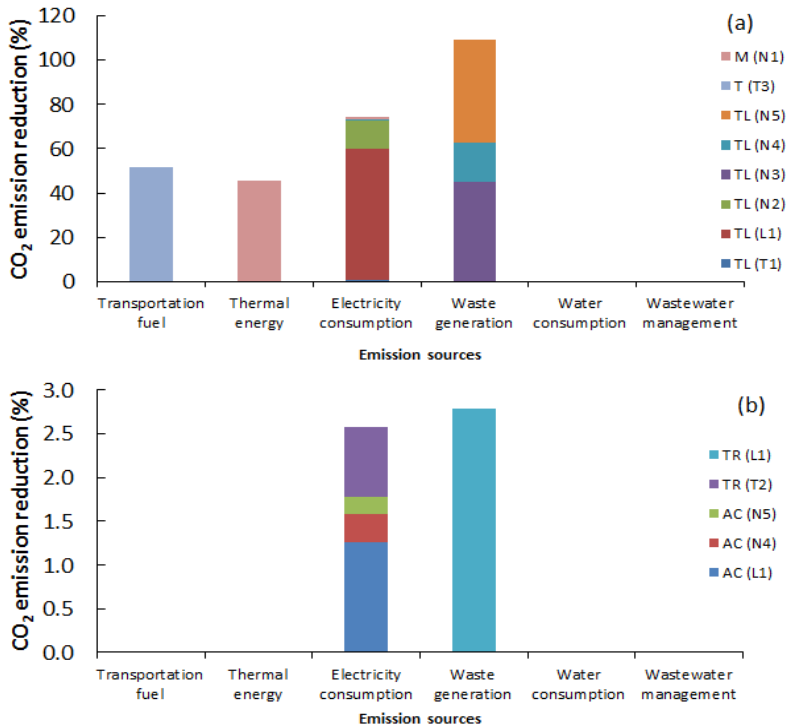
Fig. 3   Reduction in CO2 emission by different mitigation strategies for target activities with (a) high-intensity reduction and (b) low-intensity reduction

4.4 Discussions and findings

Among baseline conditions, the carbon emission from each source indicated that transportation fuel consumption showed the highest CO_2 emission followed by electricity consumption and waste generation. In addition, the selection of CO_2 mitigation measures by multi-criteria showed that measures to reduce the energy intensive, improve energy usage efficiency and increasing the recyclable collection are suitable for reducing CO_2 emission of tourism sectors in community level.

As compared to other studies, the percent reduction of total emission in community is relatively low for implementation of mitigation measures to reduce waste generation and increase recycling. This is due to the fact that mitigation measures of waste reduction and recycling were based on tourist-related behavior which is difficult to control in short-term implementation. However, waste reduction and recycling can be considered as a common mitigation measure in all of the communities for the success in terms of raising awareness of communities about emission reduction. The mitigation measures related to low emission fuels and technologies could be achieved in specific cases only, for example, mitigation measure of transportation fuel and thermal efficiency of incinerator for Koh Mak and Boh Suak. The success factor is dependent on the readiness of an enterprise/community to implement mitigation measures.

On the other hand, mitigation measures are less effective for applying energy mitigation strategies, for example, in Lame Glad and Bang Bao communities. These are due to the limitation of mitigation strategies using training that is difficult to be effective in the short-term period. It is noted that some mitigation measures at community level require longer time for proper implementation.

5. Conclusions and recommendations

Estimating baseline emissions allowed communities and stakeholders to select and implement mitigation strategies with clearer target of CO_2 reduction. It was found that transportation fuel, electricity and waste generation sectors together accounted for major emissions providing higher opportunities for mitigation at community level. Selected mitigation measures included the introduction of E85 as boat fuel, adopting efficiency lighting and increasing efficiency of waste recycling. In addition, other measures to increase awareness about energy conservation can potentially reduce energy use in all sectors. Successful

implementation of the mitigation measures is dependent on selection of relevant mitigation measures, strong support of key stakeholders in the implementation, and community leadership and participation. It can be concluded that potential and actual reduction of carbon emissions are dependent on the cases and different tourism sectors and activities as well as mitigation measures. The success factor in terms of raising awareness in a community about emission reduction was the mitigation measure implemented to reduce waste and recycling. However, the adaptation and mitigation measures related with low emission fuels and technologies could be achieved in specific cases due to the readiness of key stakeholders to implement specific mitigation measures.

Estimation of CO_2 emission in this study depended on several factors including selected or representative samples of the sources and information obtained. To further reduce CO_2 emission, long-term strategies, increasing sample size in the communities, and adopting new measures such as energy technology innovation, utilization of new energy, improving waste recycling rates and reduction are necessary. Further studies should also cover key criteria and/or factors influencing the successful implementation of mitigation measures for more effective CB-LCT development.

References

Bohdanowicz, P., Kallhauge, A.C., Martinac, I. 2001. Energy-efficiency and conservation in hotels – towards sustainable tourism. International Symposium on Asia Pacific Architecture, Hawai, April 2001.

Chan, W. 2012. Energy benchmarking in support of low carbon hotels: Developments, challenges, and approaches in China. International Journal of Hospitality Management, 31(4), 1130-1142.

Chen, W.T., Shu, C.M. 2012. CO_2 reduction for a low-carbon community: A city perspective in Taiwan. Separation and Purification Technology. 94, 154-159.

Chumsri, P., Chanin, O., Sriprasert, P. 2015. Guidelines on Developing Community Base Tourism to Sustainable Management of Tourist Attractions. Journal of Economics, Business and Management. 3(6), 653-655.

Coles, T., Dinan, C., Warren, N. 2014. Energy practices among small- and medium-sized tourism enterprises: a case of misdirected effort? Journal of Cleaner Production. DOI: http://dx.doi.org/10.1016/j.jclepro.2014.09.028.

Falak, S., Chiun, L.M., Wee, A.Y. 2014. A Repositioning Strategy for Rural Tourism in Malaysia - Community's Perspective. 5th Asia-Euro Conference 2014 in Tourism, Hospitality & Gastronomy. Social and Behavioral Sciences. 144, 412-415.

Fang, Y. C. 2011. Is Low Carbon Tourism a Good Incentive for The Development of A Low Carbon Community? - A Case Study of Pinglin District. Master thesis Lund University, Sweden.

German International Cooperation (GIZ) and Designated Areas for Sustainable Tourism Administration (DASTA). 2012. Guideline low carbon destination on tourism management in Thailand (in Thai)

Johnson, P.A. 2010. Realizing Rural Community Based Tourism Development: Prospects for Social-Economy Enterprises. Journal of Rural and Community Development 5, (1/2), 150-162.

Kadokawa, D. 2009. Eco-model city initiative in Kyoto aiming to realize a low-carbon society – Do you Kyoto? October 5, 2009. The International Conference on Promoting Low-Carbon Cities 2009.

Kontogeorgopoulos, N., Churyen, A., Duangsaeng, V., 2014. Success Factors in Community-Based Tourism in Thailand: The Role of Luck, External Support, and Local Leadership. Tourism Planning & Development. 11(1), 106-124.

Kuo, N.W., and Chen, P.H. 2009. Quantifying energy use, carbon dioxide emission, and other environmental loads from island tourism based on a life cycle assessment approach, Journal of Cleaner Production, 17(15), 1324-1330.

Lin, T. P. 2010. Carbon dioxide emissions from transport in Taiwan's national parks, Tourism Management, 31, 285-290.

Liu, J., Feng, T., Yang, X. 2011. The energy requirements and carbon dioxide emissions of tourism industry of Western China: A case of Chengdu city renewable and sustainable, Energy Reviews, 15, 2887-2894.

Nagle, B., Steuer, C. 2006. Local Efforts to Monitor and Mitigate Greenhouse Gas Emissions: A Case Study from the University Park Campus of Penn State University. The 15th Annual International Inventory Conference, New Orleans May 2006.

Nitikasetsoontorn, S. 2015. The Success Factors of Community-Based Tourism in Thailand. NIDA Development Journal. 55(2). 1-22.

Nitisoravut, R., Sangsnit, N., Dhiralaksh, J., Nitivattananon, V. 2014. Low Carbon Hotels towards Sustainable Tourism in Koh Chang and Neighboring Islands, Thailand. GMSARN International Journal. 8. 127-136.

Njoroge, J.M. 2014. An enhanced framework for regional tourism sustainable adaptation to climate change. Tourism Management Perspectives. 12, 23-30.

Pookaiyaudom, G. 2012. A Comparative Analysis of International and Domestic Tourists' Perceptions of Community-Based Tourism: The Case of Pai, Thailand. (Doctoral Dissertation). University of Central Lancashire.

Prabhakaran, S., Naira, V., Ramachandran, S. 2014. Community participation in rural tourism: Towards a conceptual framework. Social and Behavioral Sciences. 144, 290-295.

Radwan, H., Jones, E., Minoli, D. 2010. Managing solid waste in small hotels. Journal of Sustainable Tourism, 18:2, 175-190.

Sharpley, R. 2009. Tourism Development and the Environment: Beyond Sustainability? London: Earthscan.

Teng, C.C., Horng, J.S., Hu M.L., Chien, L.H., Shen, Y.C. 2012. Developing energy conservation and carbon reduction indicators for the hotel industry in Taiwan. International Journal of Hospitality Management. 31(1), 199-208.

Tolkach, D., King, B. 2015. Strengthening Community-Based Tourism in a new resource-based island nation: Why and how? Tourism Management. 48, 386–398.

Tsai, K.T., Lin, T.P., Hwang, R.L., Huang, Y.J. 2014. Carbon dioxide emissions generated by energy consumption of hotels and homestay facilities in Taiwan. Tourism Management. 42, 13-21.

United Nations Environment Programme and World Tourism Organization (UNWTO). 2012. Tourism in the Green Economy - Background Report, UNWTO, Madrid.

World Travel and Tourism Council. 2013. Travel and Tourism Economic Impact 2014 Thailand. London: World Travel and Tourism Council.

Yamaguchi, Y., Shimoda, Y., Kitano, T. 2013. Reduction potential of operational carbon dioxide emission of Nakanoshima business/cultural area as a model for low-carbon districts in warm climates. Building and Environment. 59, 187-202.

Destination Management of Small Islands: The Case of Koh Mak [1]

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Abstract

Koh Mak is a small island in the Gulf of Thailand that is usually visited by tourists as part of a multi-destination tour. It differentiates itself from its neighbours by being positioned as a quiet, family-based location that utilizes a low-carbon strategy. However, it is not currently clear how effective this strategy is. Islands tend to be successful in terms of destination management when they have a diversified economy and some genuine social capital or relations with which visitors can establish a relationship. This is not evidently true for Koh Mak but it might be true if the island can be considered part of a multi-island cluster. This paper uses qualitative research to explore the opinions of tourists and long-stay residents about their experiences on the island and then tests whether existing models of island tourism are borne out in this case. It is found that the current positioning is somewhat contradictory and inevitably limited in time because increasing numbers of tourists will serve to damage and then destroy those attributes which are being promoted.

Keywords: destination management, islands, Thailand, tourism

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1. Introduction

This paper reports on research conducted into the issues relating to the promotion of Koh Mak as a tourism destination that is a low carbon destination. Koh Mak is one of a chain of islands in the Gulf of Thailand for which tourism is a significant actual or potential generator of income. In general, islands as tourist destinations go through a life cycle process that begins with tourists wishing to explore a new destination, followed by engagement with the island, exploitation of it and then its maturation. After this, the island's destination managers can take steps to reinvent itself through innovation or else watch the decline into failure. It might be noted that different sets of people can be involved at different stages of the island's development at the same time or different times. For example, it is evident that Russian tourists are now in a process of moving away from their previous destinations in Pattaya and Bangkok and now have spread in numbers to Koh Chang. Some have reached Koh Mak (anecdotally, because they have seen it from a cruise and decided to visit) but then have mostly felt disappointed because of the lack of tourist facility development that they found there. These Russian tourists are active at exactly the same time as Western European visitors to Koh Mak who find it – in various ways – enticing and magnetic irrespective of the level of facilities. These tourists can be fully engaged in tourism development on the island while the Russian tourists are at the exploration stage and might want to move directly to the exploitation phase.

This does not mean that there is anything different or unusual about Russian tourists. A decade ago, Chinese tourists to Thailand were characterized by the zero dollar tours concept and their comparative lack of sophistication (as, previously, had been the perception of Japanese and Korean tourists). Now, Chinese tourists are considered to be well on their way to sophistication that their neighbours had previously travelled (although new segments of the market are still being added who are

at lower levels of sophistication). Within a few years, therefore, it is quite possible for a source of tourists to be changed significantly in terms of their demand for tourism services.

Koh Mak has is marketed as an unspoilt destination that reminds travellers of what Thailand was like two or more decades ago - as one respondent to this research project put it, "Koh Mak is the paradise I have been looking for in Thailand." However, it has an additional characteristic which is potentially an important part of its marketing personality. It is a low carbon destination or, at least, it aspires to being a low carbon destination and currently has a number of demonstration projects that show business owners what can be achieved through a low carbon approach. There is some limited outreach of this approach to tourists at present but lack of resources mean that most tourists remain unaware of the concept at the destination. The low carbon approach is led by DASTA - Designated Areas for Sustainable Tourism Administration, which is a public service sector organization established in 2003 "...with the roles and responsibilities over sustainable tourism operation, through coordination for integrated administration of areas with valuable tourism resources, with more flexibility and promptness in operation than that of government agencies and state enterprises, as an important driving force in the administration of the country's tourism industry both in short and long terms (DASTA, 2013)." As part of its activities, DASTA has chosen Koh Mak to be a low carbon destination and, additionally, DASTA has designated certain other areas in Thailand to receive special treatment, including Pattaya City, Sukhothai-Si Satchanalai-Kamphaengphet Historical Parks, Loei, Nan old city and U-Thong ancient city. It is involved with a range of product development and research projects aimed at helping develop or rediscover local wisdom or production that can act as genuine social capital and, hence, a focal point for the creative destination concept.

Tourism is one of the most important industries in Thailand. A total of 26.7 million visitors came to the Kingdom in 2013, which represented a nearly 20% increase on the previous year (Tourism Authority of Thailand, 2014). Visitors welcome the opportunity to enjoy beaches, tropical weather and the food which has become increasingly familiar to people around the world as a result of the success of the restaurant export sector. However, it has long been known that the tourism industry has a tendency to produce low-skilled jobs in the service sector in which wages can be variable and seasonal (e.g. Choy, 1995). Further, there is always a danger that money generated within a tourism destination will not remain in that destination but will drain away to distant capital investors who own hotels in the destination or else overseas because of the consumption of imported food and beverages. This has been shown to happen in Luang Prabang in neighbouring Laos, for example (Southiseng and Walsh, 2011). As a result, the ability of the tourism industry to play a part in transforming Thailand's economy is limited. Thailand is currently struggling with the Middle Income Trap. It has achieved rapid economic growth in recent years partly through the use of the Factory Asia concept, which employs low labour cost competitiveness in manufacturing industries that aim at import-substitution and are export-oriented. The limits of growth provided by that approach have now been reached and there is a need to switch to a new paradigm of growth in order to reach the high income status. An example of how this might be achieved is provided by South Korea, which has used creativity and connectivity, alongside greater openness and trust in society, as the means of making process. The Pheu Thai government, elected in 2011, has responded to this challenge by such measures as increasing the minimum wage rate by 40% and unveiling ambitious have highly necessary infrastructure construction plans (currently being blocked by courts). Nevertheless, there remains a need to make the service sector, which includes tourism, also are capable of contributing more to the new paradigm

of growth. Various approaches have been tried in this case and one of the more important efforts has focused on the creative space destination (e.g. Richards and Wilson, 2006). This idea is based on developing a wide range of tourism destinations, for both domestic and international customers, while seeking genuine social capital in each place that can be developed to provide a unique experience in each case. Previously, the One Tambon One Product (OTOP) campaign successfully enabled local communities to upgrade production of some local specialities which were then marketed and distributed at home and abroad with government assistance (Natsuda et al., 2012).

Of course, just as not every item produced under OTOP has been successful, so too will there be relative failures under the creative space destination concept. It has been argued that success will be achieved with the presence of three factors: genuine social capital, stable allocation of resources and good connectivity (Walsh, 2013). It is necessary that the destinations also display hospitality, although this is a basic service offering and not necessary to include in the model previously described. Hospitality is regularly considered to be a defining feature of the Thai tourism industry and an innate part of the essentialist Thai character. Indeed, there is an element of societal Thainess that is supposed to reflect the willingness of Thai people to defer to authority and to meet any encounter with a welcoming smile.

This report concerns research supported by DASTA into the nature of Koh Mak as a low carbon destination, its appeal to current and potential customers and suggestions for further development of the destination along the lines of sustainable development. The research used qualitative research methods to determine the attitudes of tourists on Koh Mak towards the island and their experience of it, as well as the opinions of longer-term residents who were foreigners (western European) and business-owners or other important stakeholders for the tourism industry on the island.

2. Issues in Island Tourism

2.1. Island Tourism Destinations

The marketing of tourism destinations has become increasingly intense and competitive as more destinations have entered the international market and the willingness of tourists to travel long distances and spend lots of money has been squeezed by the global banking and austerity crisis that began in 2008 and (perhaps to a lesser extent) the desire on the behalf of consumers - particularly but nor exclusively consumers from western Europe - to reduce the carbon footprint resulting from their consumption decisions. Islands are different from other tourism destinations because of their geographical situation: that is, they are specific geographical areas that are bounded in space in a way that mainland areas are not. Islands - especially small islands (defined as having a population of less than one million people) must import some or all of their food and water and transportation costs (by sea or by air) are such that it is always more expensive to operate businesses and take holidays there. This is particularly true of very small islands (defined as having a population of less than one hundred thousand people) on which groundwater resources are very limited and rivers are too short (and may flow only on a seasonal basis) to provide regular supplies of fresh water. This means that water has to be imported from elsewhere which is, necessarily, an expensive undertaking and, further, likely to work in a counter-seasonal manner since tourists are more likely to arrive during periods of sunny rather than rainy weather.

2.2. Small Islands as Peripheral Areas

Since, as described above, small and very small islands are unable to sustain substantial populations because of lack of economic activities and resources, they have tended throughout history to be peripheral areas in terms of politics. Without adequate representation

at the national or even the provincial level, small islands have often been left to fend for themselves and, consequently, their interests mostly disregarded. In other words, they have been on the periphery of larger political systems and, like most peripheral areas, they exist to be a source of resources to be extracted by the core. In other words, small islands have, through history, been places where resources have been provided for people from larger places to take away from it.

This effect also exists with regards to social and cultural elements. The cultural life of island people (insofar as it exists in an independent aspect to the dominant mainland culture) will have been considered subsidiary to the main form of cultural expression and treated as less important. The situation is similar to the treatment of ethnic minority cultures and societies. When these areas become incorporated into tourism destination systems, their specific cultures and societies are treated as subsidiary and secondary - in other words, they must conform to what is expected of them by tourists and tourism managers and their personal identity is treated as exotic, different and subject to examination and deconstruction. The experience of tourists on Thailand's island beaches has been described as 'marginal paradises' which are "touristic paradises marginal to both the life plan of the tourists and the ecology and economy of the native society. Contrary to a widespread idea, vacationing youth tourists seek mainly "recreational" experiences, resembling those sought by most mass tourists, and show marked narcissistic tendencies. They have few relations among themselves or with the natives (Cohen, 1982)." Insofar as this continues with present day tourists - and the research suggested that a similar holiday lifestyle persisted with many of the respondents, who spent most of their time in their chosen resort areas and had very limited interaction with any Thai people - this means most interactions that do take place are low-context interactions. That is, they take place in English with people who are used to receiving a comparatively

limited amount of requests and know how to respond to them (e.g. 'what time is breakfast' or 'where can I buy medicine?'). As a result, there is little need to develop staff to a high degree, although that might have additional benefits in other ways.

2.3. Categories of Islands in the Context of Destination Management

As previously mentioned, much of the previous research into island tourism destination management has focused on the Caribbean, where the post-colonial element is very important, as it is also in Sri Lanka, Malaysia, Bali and elsewhere. However, there are various different ways in which islands can be categorized and there are different marketing implications for each, as the following table indicates.

Category	Options	Implications
Openness to external influences	Open; semi-open; closed	Open islands actively seek out new tourists and have been internationalized or globalized (e.g. Mallorca). Semi-open islands accept tourists and adapt to a limited extent to internationalization (e.g. certain Greek islands in the Mediterranean). Closed islands deter tourists either because they are not wanted (e.g. privately-owned islands) or because they are very unattractive to tourists (e.g. Orkney islands).
Governance	Microstate; province or semi-autonomous province; district	Microstates (e.g. Caribbean islands) are able to make their own laws; provinces (e.g. Phuket) or semi-autonomous provinces (Hainan) can make regulations at a local government basis; districts (e.g. Koh Mak) have very little influence over

Category	Options	Implications
		the laws and regulations which govern them and may not have effective parliamentary representation.
Size	Small; medium; large	Large islands (e.g. Tasmania) may be self-sufficient in terms of food and water; medium islands (e.g. Phuket) may be self-sufficient in terms of food and water for part of the year; small islands (e.g. Koh Chang) are reliant on imports for food and water and other essential items.
Economic Development	From low to very high	Highly and very highly developed islands (e.g. Singapore) may have extensive internal resources to attract, accommodate and entertain visitors. Low economic development (e.g. many Indonesian islands) mean that there is no effective marketing campaign to attract tourists and, even if they still come, there are few if any resources to accommodate them.
Post-Colonial	Post-colonial, still colonial, not colonised[4]	Post-colonial islands (e.g. Jamaica) may have legal and cultural systems based on those imposed by the colonists; still colonized islands (e.g. Puerto Rico) have legal and cultural systems that are hegemonically controlled from outside; not colonized islands (e.g. Isle of Skye) have legal and cultural systems that have developed indigenously.

[4] It is possible to argue that if one goes back far enough in time then every island has been colonized sooner or later.

Category	Options	Implications
Status	Single; chain; archipelago	Single islands (e.g. Sicily) are likely to be tourist destinations in their own right (perhaps along with the mainland); an island in a chain (e.g. Koh Chang) might be part of a multiple destination visit; islands that are part of an archipelago (e.g. southern Philippines) will be likely to have some potential destinations and some undeveloped (semi-closed or closed) islands in a multiple destination visit.
Climate	Tropical; semi-tropical; temperate	Tropical (e.g. Singapore) and semi-tropical (e.g. Phuket) islands are likely to have an outdoor orientation for visitors with the need for air conditioned public spaces and accommodation. Temperate climate islands (e.g. Channel Islands) have different requirements dependent on the season or else a low season when few or no tourists visit.

Table 1: Categorisation of Islands as Tourist Destinations; source: Author

On the basis of these categorisations, it is evident that Koh Mak is an open, district, small, medium level economic development, not colonial, chain, semi-tropical island. That it is open means that tourists are being sought (although there are some limitations on how many tourists and what kinds of tourists), while the not colonial status means it is organized according to Thai laws and systems at the district level,

which further means that local leaders have little influence over amending or introducing laws or regulations. As a small island, Koh Mak is dependent on imports of food and water and other essential goods. As a member of a chain of islands, it can expect to be part of a multiple destination visit and, so, should expect to be involved in joint or group marketing efforts. As a semi-tropical island, it will focus largely on outdoor activities for tourists while ensuring air conditioned services for tourists when they no longer wish to be outside. Being located in the Monsoon region, Koh Mak also has some seasonality in its tourist campaigns and it is noticeable that at least some resorts and hotels have begun to differentiate their offerings for an international season (before Songkran) and a mostly Thai season (after Songkran).

2.4. Koh Mak

Koh Mak is an island in the eastern Gulf of Thailand, close to the neighbouring country of Cambodia. It has a circumference of approximately 27 kilometres and is said to have around 800 permanent Thai residents. It is located in a sub-tropical monsoon region, which means that there are considerable variation in weather conditions at different parts of the year. The island is considered to be a tambon (sub-district) attached to Koh Kut, within the confines of the province of Trat. Koh Mak is one of a number of islands within the eastern Gulf of Thailand and has been peripheral to the main trajectory of economic development in the countries nearby.

It is said that Koh Mak was first occupied officially during the reign of King Rama V Chulalongkorn, when an ethnic Chinese man known as Chao Sua Seng became known as the official Chinese resident there, subject to the Siamese throne. It is well-known that a large number of ethnic Chinese people had migrated to southern Thailand and northern Malaysia (then known as Malaya) as coolie labour, entrepreneurs, family members and in other capacities so as to become involved in tin mining, rubber plantations and other activities. Those individuals who

were particularly successful were able to invest and re-invest their capital in a variety of activities and, in the case of Chao Sua Seng, could become landowners of areas which were not considered important by the central state. The owner is said to have established a coconut plantation and, at a later date, sold the land to the Taveetekul clan, whose descendants are said to own most of the land of the island until the current day (Kohmak.com, 2014). The adherence of family members to Buddhism has ensured that the island has belonged culturally to the mainland and a part of the Thai rather than the Khmer state.

For much of its subsequent history, Koh Mak has existed as a small-scale agricultural provider of goods for the mainland - including rubber, coconuts and alcoholic drinks (which were until the modern age produced under licence in specific locations). In return, rice and necessary foodstuffs were sent to the island, which indicates that the island was not then and presumably never has been self-sufficient. In the modern age, tourism has become increasingly important to the island and this has intensified the need to import essential goods such as food and water.

One of the principal agricultural activities on Koh Mak is the use of rubber plantations. These range in size but none of them seem to be very large to the extent that their owners could take much advantage of economies of scope and scale. Economies of scale would apply if the plantation were sufficiently large that it could provide a measure of supplier power; economies of scope would apply if plantation growers could use their existing plantation land to grow other crops simultaneously - in fact, some rubber growers do have some pineapples growing between the rubber trees but only to a limited amount.

Interviewees suggested that growing rubber was particularly suited to Koh Mak both because geological and climatic conditions favoured rapid growth of the trees and their early maturation but also because those conditions tended not to favour other types of agriculture.

Despite there being an apparent market for locally produced foods, particularly vegetables and herbs, most people felt that the limited amount of land available and the particular conditions of a small island meant that these items could never be grown at a competitive rate compared to food imported from the mainland.

The rubber industry as a whole would not appear to be a very attractive market to try to enter. Rubber prices are very volatile, with potential slumps caused by over-supply and reliance on the global economy for demand for vehicles (for which rubber is used in the tyres). Natural rubber is also subject to competition from synthetic rubber, which is considered to be a superior product in all but specialized applications such as surgical gloves and condoms. Rubber futures in important regional markets recently fell to a five-year low (Bangkok Post, 2014).

On the face of it, tourism can never be a form of sustainable development if viewed at the level of the individual island. However, Koh Mak should be seen as part of a larger system that includes the various islands in the Gulf of Thailand and parent province Trat. When seen as a holistic whole, then tourism could be part of an industry that might provide sustainable development.

3. Methodology

For this part of the research project, a qualitative approach was used. This was because it was judged that the best way to obtain useful information on this subject was to ask people directly about their experiences and permit them to express their opinions depending on those experiences. A semi-structured questionnaire agenda was prepared so that approximately the same question areas were used for each respondent but the respondents were given the liberty to introduce new areas if they considered them to be important or relevant. This is a suitable approach to take when the researchers wish

to discover new information based on what were expected to be varied individual experiences. Local hotel and resort managers had been contacted previously and agreed to help facilitate interviewing by recruiting potential respondents for a specified date. Some refreshments were provided at the several different locations used.

The face-to-face in-depth interviews were accompanied by a focus group of long-term foreign residents of Koh Mak. These people were selected based on being well-known as prominent foreign residents with an interest in the development of the island. Koh Mak has quite a small permanent population so it was not difficult to identify these major stakeholders.

The interviewers were recorded and accompanied by extensive note-taking. Transcripts of the interviews and the focus group were entered into a database and subsequently interrogated by a form of content analysis. This was at first exploratory in nature in that the intention was to find categories of information and opinion from the overall body of information gathered. The database was supplemented by the accounts of the researchers (through using the research diary method) and secondary sources as appropriate. Once introductory categories were identified, these were re-examined and refined through further examination of the existing data and then the quantitative research.

Interviews were conducted primarily in English, although there was some supplementary interviewing in Thai language. Most of the respondents had sufficient ability in English to be able to participate in the research and the research team had extensive experience of research in a multicultural setting so as to be aware of any issues arising from differences in languages. One limitation to the research is the lack of non-English speaking respondents. A second limitation relates to the necessarily constrained period of space and time available for fieldwork. Since the interviewing process aimed to obtain a variety of different types

of respondents (thereby adhering to the principle of maximum diversity within a sample) and the focus group respondents confirmed that there were few if any other major stakeholders who should be interviewed, then it is believed that the possible problem of non-response bias has been avoided in this case.

3.1. Demographic Details

Since the majority of the respondents were recruited in part by hotel or resort managers and were happy to join the research project, it is evident that the respondents involved would be positive in their attitude. There were few respondents who were not confident in their use of English and those who did lack confidence were accompanied by group members who could assist them. In general, then, the respondents were well-educated and of a good level of income. Taking a holiday in Thailand itself is quite a significant investment but none of the respondents gave the impression that this was a once-in-a-lifetime experience or that they were constrained in their consumption choices by lack of money. Indeed, most respondents expected to return to Thailand or had already visited several times. It was common for a respondent to describe a progress through Thailand, beginning on previous trips with Bangkok and Chiang Mai, then moving on to Phuket and the Andaman Sea islands before moving on to the Gulf of Thailand islands.

Respondents came from a range of European countries, including Italy, Germany, Switzerland, Sweden, the UK and France, among others. Conversations with business and resort-owners indicated that these were the countries from which the majority of international tourists tended to come. It was noteworthy that they were no or comparatively few tourists from North America or Australasia, and very few from East Asian countries. There is scope for further promotion in these markets. Respondents reported that some Russian tourists were starting to arrive but were not usually satisfied with the level of facilities

available and tended not to stay long. Research on neighbouring Koh Chang indicated a substantial Russian presence there which might in due course spread to Koh Mak.

Most respondents were travelling as part of a family group, possibly with some friends as well. Children who were present tended to be very young and there were no teenagers in the sample obtained and few in evidence at other locations on the island. The range of ages for respondents was from mid-20s to mid-50s approximately. All respondents were Caucasian. Most had either high-paying jobs or else capital that meant they could travel extensively for lengthy periods during the year. Living in Europe offers the opportunity to save money if regular employment can be found: respondents spoke of friends and family members who would work long hours for six months or a year, spending little, with a view to taking a similar period off work which could be spent travelling. It is not necessary for a person to have a university degree to obtain a job that could help people achieve this goal. In Europe, there is a much lower correlation between wages, family status and educational level. All respondents seemed to be familiar with using the internet and comfortable online. However, respondents did not spend most of their waking lives playing with their smartphones or tablets in the way that Thai tourists continued to do. It may be that this is the result of lack of access to the internet but it seemed to be more of a lifestyle choice.

4. Findings

4.1. Opinions of Tourists

The tourists who were interviewed for this project were nearly always entirely positive about their experiences and held a very favourable impression of the island and its people. This issue is discussed in the following section about overall impressions. However, there were some less favourable impressions and these are joined together in the subsequent section, which concerns a variety of hygiene issues.

One issue that should be highlighted is the importance of the internet in alerting tourists to the existence of Koh Mak and its facilities. A large proportion of the tourists had used the internet to search for information or had consulted forum sites to find out what other people thought about t. Of course, it is not known what sources people who did not visit the island used. It suggests that it is important to have a strong and active web presence so that whenever a potential tourist enters the name 'Koh Mak' into a search engine, then the official site or sites are ranked on the first page – research suggests that few customers will search beyond the first page of results.

4.1.1. Overall Impressions

As mentioned above, most respondents were happy with their experiences and particularly valued the peacefulness and tranquility of the island. A telling phrase was 'this is the paradise I was looking for in Thailand.' For many of these tourists, the idea of Thailand is a land of virgin beaches, sparkling seas and helpful, naïve local people. When they arrive in locations such as Phuket or Koh Chang, therefore, they feel that something is wrong – it is too loud, they are bothered too much by street vendors and the experience is not authentic based on their imagination. For people such as this, then, they visit Koh Mak in order to find something they had already imagined and are satisfied. Two decades ago, they could have found that vision in other places which have now

become, according to the respondents, over-developed. In another few years, they might move on from Koh Mak if it starts to become too busy or lively. According to the life cycle concept presented previously, these tourists are at the explore/engage stage of involvement but if the destination moves towards the exploitation phase, then they will stay away as this is not something they desire.

It is the peaceful environment that is the dominant attractive feature and it leads the tourists into a very quiet lifestyle while on the island - it should be noted that Koh Mak was usually not the sole destination to be visited during the holiday. Tourists were happy to enjoy some peace and quiet on Koh Mak but often wanted to combine it with a livelier set of experiences, which were usually sought on Koh Chang. Diversity between the different islands, in other words, is important in appealing to tourists who are able to be mobile between them.

Since tourists wanted a peaceful time, they did not expect there to be any more night time entertainment than currently existed. There are plenty of restaurants and cafes where people can meet and enjoy each other's company but no very loud night clubs or rows of beer bars. It was fairly clear that tourists did not want the loudness of such places and, in fact, the presence of night clubs and similar places would contribute to destroying the experience desired. The same is true of any other loud noises (e.g. banana boats or jet skis). Most tourists did not realize that these activities are not permitted on the island but appreciated the fact that they were not present.

Most tourists remained in their resorts for most of the time spent on the island and preferred to take all their meals there. There was general satisfaction with the food and beverages available and most respondents were familiar with Thai food already because of the success of the Thai restaurant export sector - Thai food is now known around the world and, even if the tourists do not often eat it at home (although some did eat Thai food regularly), they knew what it was like

and it did not appear to be strange to them. Consequently, exotic food was not a barrier to the tourists on Koh Mak, since they were more experienced. This appears to be different to the experience on Koh Chang, for example, where it appeared that many Russian[5] tourists wanted to find food more familiar to them and also to try street food that they could recognise (e.g. grilled chicken, fruit) and which would be cheaper than indoor alternatives.

It was found, then, that the respondents were happy with the food and beverages provided and thought the quality acceptable and the cost modest, especially since food costs in Europe are generally much higher. There was little interest in gourmet or five star dining experiences or the introduction of any new types of cuisine. Research indicated that there was a range of western styles of food available in certain restaurants (e.g. Italian, German) for those who wanted to try them, in addition to the Thai dishes sold in the same restaurants. There was no visible evidence of alternative Asian cuisines (e.g. Japanese or Korean) and, equally, few Asian tourists from those countries.

When it came to accommodation, the respondents were again quite satisfied with what they received. A small number would have been interested in a higher level of accommodation (e.g. four or five-star hotels) and would have been happy to pay more to receive that level of service. However, most respondents were satisfied with what they received already and were complimentary about the attitude and helpfulness of the staff. It might be noted that this happiness with service levels was somewhat contradictory to some of the experiences of the research team, since there was more than one instance of

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[5] Some of the 'Russian' tourists may have been tourists from Eastern European countries speaking languages somewhat reminiscent of Russian but which the researcher could not differentiate. In any case, these tourists also had a general lack of experience with travelling and with Thailand.

poor service in restaurants where it appeared that lack of training or incentive of staff represented a problem. This will be discussed further below in the section on governance.

When asked whether there were additional facilities or services that respondents would have liked to be able to receive, there were few responses and those that were received only from one or two people in each case. Some of these were for beach activities such as surfing, kite-surfing and wind-surfing which are not currently available but which would not make any loud noises or be too intrusive. Another issue was the quality of the internet reception available. In Western countries, it is becoming increasingly common for people to be able to enjoy what is effectively free (or very low-cost) broadband reception just about everywhere - at least in urban settings. As a result, people plan their leisure activities around possession of a tablet or smartphone on which they can watch streaming films, TV and so forth whenever they like. This means they can travel light without DVDs, books, magazines and other media. Some tourists will expect this service to be available to them on Koh Mak and will be disappointed if it does not meet their expectations. If provision of internet coverage is problematic, then hotel and resort owners will need to be generous in providing alternative sources of entertainment people can enjoy on their own.

4.1.2. Hygiene Issues

A number of respondents were concerned about some hygiene issues concerning the environment, although others were quite happy with the level of cleanliness. There are several issues involved with this. First, there is the issue of the water. Some people felt that the level of cleanliness of the water and, hence, the beach, was sub-standard in some areas. Even those who were unhappy that there was some rubbish or jetsam on the beaches did not think that the whole island had a problem but only certain small parts of it. Most understood that flotsam became jetsam depending on the nature of the tides and

currents and that this was not something that people could easily control. Consequently, respondents did not blame anyone for problems with hygiene but simply observed that it existed.

Second, there is the issue of the smell from the recycling centre. Recycling is a standard procedure in most of western Europe so respondents are not surprised (or particularly impressed) to see some limited recycling taking place on the island. What is surprising is that so much rubbish is gathered together in a central location at which nobody seems to be working and that it gives off such a bad smell continuously.

The third issue relates to sandflies (which are bloodsucking, biting, flying Dipterans of various types). Some respondents have suffered from being bitten and one couple claimed that they would not have visited Koh Mak at all if they had known the size of the problem. Scanning the web forums (e.g. Lonely Planet, Travelfish, Thaivisa), this issue is becoming quite strongly associated with Koh Mak. The people who are likely to post on these forums are those younger people who have less money and so are likely to spend more time on the beaches. Lying with the skin in direct contact with the sand is a means of greatly increasing the risk of being bitten and, since the bites are not immediately obvious, it is possible to be bitten quite often in a short period of time. Some people have had to seek medical treatment as a result and this and the suffering caused by the bites has completely ruined their experience.

Respondents do note the precautions taken to protect people from the sandflies but also noted that most of these precautions were either not properly supported (e.g. the free vinegar supplies have not been replaced) or else that they did not really work. There is not much that can be done about this problem, apart from warning tourists not to touch the sand directly in the absence of a large-scale cleaning programme on every beach on a regular basis. Ironically, what would

reduce the threat the most would also ruin the experience of the island: if there were a large number of people walking on the beach regularly, then that would be enough to damage the sandfly eggs and, hence, solve the problem at the expense of ruining the solitude of the island.

A small number of respondents expressed concern about other environmental hazards, for example jellyfish. However, this was not considered to be a serious problem and most people realized that, in a sub-tropical country such as Thailand, it is necessary to be cautious when interacting with nature. This was the same situation with sea urchins, which can cause injury if stepped upon. Respondents felt that tourists generally should realize that spiky sea animals are likely to cause pain if stepped upon and so avoid them. In some swimming or diving activities, contact may be unavoidable but this is why safety clothing and equipment is provided.

One additional point that might be included here is the very high proportion of respondents who smoked during their holiday. The proportion of smokers appeared to be much higher than national averages, although this estimated is based on anecdotal evidence. In Europe, restrictions on smoking in public are now quite severe and this can make it quite difficult for people to be able to find relaxing opportunities to smoke with other people. By contrast, this was very possible in Thailand, where laws prevent smoking only in air conditioned public spaces. There were some respondents who observed that they have given up smoking in their home countries and only do so when on holiday in a country such as Thailand. Of course, not everybody is happy to be part of a smoky atmosphere.

4.1.3. Attitudes towards the Low Carbon Destination Concept

All or nearly all of the respondents were interested in the concept of the low carbon destination but did not realize that it was in

operation at Koh Mak. No respondent had noticed any of the existing solar panels and thought recycling and other activities unimportant, because they are so familiar with them in their home countries. Most Western European countries have been educating schoolchildren in the need to adopt a more environmentally friendly lifestyle and implementing relevant policies for some decades and so tourists from those countries are quite used to following them and understand their importance. However, most respondents had not thought about low carbon use in a destination in Thailand and found that there was a contradiction between taking a long-haul flight for a holiday and still thinking about environmental sustainability. When respondents did start to hear about the concept, they were generally supportive but wondered why it was not taking place on a much larger scale. By contrast with, for example, Germany, where the available amount of sunlight is quite limited but the use of solar power and other renewable sources of energy is very extensive,[6] Thailand has very little use of solar power, especially at the household level. In Germany, it is possible for individuals and commercial companies who generate electricity from renewable sources to sell some or all of that electricity to the national grid. As much as 40% of renewable energy in the country is provided by individuals (McGrath, 2013).

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[6] Germany produces more solar power than any other country, at 400 MW per million people, with Italy second on 267 MW per million people. In July of 2013, German solar panels produced 5.1 Terawatt hours of electricity in a single month (breaking the record of 5.0 Terawatt hours produced by wind turbines in January of the same year (Kroh, 2013). In Thailand, investment in solar power has increased considerably when it was announced that the government would buy solar power from private sector providers at a good price and the country plans to increase its total capacity for solar power to 3,000 MW, by which time its total contribution to the overall power sector will have increased from 8% to 25% (Song, 2013).

In other words, tourists would not be surprised to see a very much more obvious use of solar power on Koh Mak as well as everywhere else in Thailand and would be supportive of its use. Incentives to householders and businesses to make more use of solar power cells, perhaps through subsidies, would be likely to be welcomed. There will be some people who object to use of renewable energy on aesthetic grounds - they argue, for example, that wind power generating turbines are noisy and ugly and that solar panels detract from the natural beauty of the architecture and so forth. This, from a destination management perspective, is a matter of the level of expectations and how they can be managed.

4.2. Opinions of Long-Term Residents

A focus group of long-term residents were drawn together for a focus group discussion of issues relating to tourism and the destination management of Koh Mak. The respondents were known to each other and familiar with each other's company, which meant the group took on the characteristics of an affinity group: affinity means people are more likely to be open with each other, be more willing to reveal their feelings and contradict each other without fear of causing conflict because of the sense of group cohesion imparted by the method (e.g. Keddie, 2004). These characteristics were evident in this group who had all been present on Koh Mak for a number of years and, as tenacious if not always wealthy business-managers or owners, had come to understand the way things work on the island and had quite extensive knowledge of Thailand more generally.

4.2.1. Overall Impressions of Koh Mak

Since the respondents had stayed on Koh Mak for a considerable period of time, although they might have interspersed this with periods of residence elsewhere, it is evident that they would have a generally positive attitude towards the island and the experience of living there.

There are many reasons for foreigners to live in a location such as Koh Mak, some of which are more honourable than others. As a result, most respondents had a favourable response to the question why they were living on the island. Most spoke about the location, in various contexts, as well as the desire to make a life on it. Making a life on the island does not necessarily mean a permanent residency on Koh Mak but it does mean a serious commitment. In the contemporary world, entrepreneurs and business-owners prefer to keep their assets as liquid as they can and to be ready to move from one place to another in the event of negative external environment event. Foreigners who live in Thailand, therefore, do not always have a deep and unalloyed love of the country or the place where they live but they can enjoy the situation and compare it favourably with elsewhere.

4.2.2. Environmental Issues

Respondents were well-aware of the low carbon destination and generally approved of it, since most if not all people approve of attempts to reduce damaging the environment unnecessarily and taking some steps to mitigating global climate change. Awareness of these issues is, in general, much better developed in Europe, the home of the respondents, and Thailand and, further, information about it is provided to children at all levels of education. What may be new to the Thai residents of Koh Mak (and other DASTA-assisted areas), therefore, might be very familiar to the overseas residents. Indeed, they might feel - as several did express - that the public sector could be doing much more to encourage all residents to do more to protect the natural environment. They are aware that, as a small island relying upon the tourism industry, Koh Mak is in a very vulnerable situation and even current levels of development pose significant dangers to the sustainable development of the island.

Respondents pointed out a number of problems with the low carbon destination concept that arise from the fact that so many

environment-damaging activities were going ahead at the same time. One principal issue was with the nature of the vehicles used on the island, which are thought generally to be at a low level of repair and to be needlessly damaging through emissions. These vehicles could be checked by police or other authorities (as happens in other countries) and repaired to ensure efficient use of fuel and reduction of emissions. Respondents presented other options: the use of electric vehicles (or hybrid vehicles) instead of petrol or diesel-powered cars. This would need some investment to ensure supplies of electric power were available and possibly a version of the 'cash for clunkers' policy introduced in the USA and elsewhere which provides some assistance for people wishing to buy a new car and trade in their old, inefficient one. Thailand's government introduced a similar scheme to help people but their first car (thereby helping to sustain demand for automobiles at a time of global economic crisis) and so should be able to manage something similar in this case, especially as it would have a much more positive effect on the environment than the past policy.

It is also possible to use biofuels as an alternative to currently employed fuels but this is not popular in Europe, in general, since it is widely believed that the land used to grow biofuels would be better devoted to growing food and helping to keep prices low. Food is relatively much more expensive in Europe than it is in most of Asia and since a great deal of it is imported, awareness of prices is quite high. Respondents tended to agree with this idea and did not support biofuels. Some did think that the use of cooking oil to power vehicles was a technology that could be used effectively on the island. One respondent gave the story of having bought a tuk tuk from Bangkok which uses an efficient cooking oil approach but reported that he had to have it disassembled and brought to the island piece by piece to escape from some regulations which prevent moving vehicles from province to province.

Respondents also discussed other types of vehicle, including the use of animals. Although there are roads to all parts of the island now, the rapid elevation of the island, together with the climate and soil type, mean that roads can often and rapidly become difficult to travel - this is of course, one of the reasons why people, both residents and tourists, prefer to rely on motor cycles rather than bicycles and powered vehicles rather animals. However, it was felt that there was some scope for use of animals for transportation and that this might at least offer some encouragement to others and to provide a good example.

The respondents were, in general, critical of the cleanliness of beaches. Since they were nearly all year-round residents, they were very aware that items could arrive on different beaches on a wide range of occasions and this was dependent on forces beyond the control of anyone on the island. However, their assessment of the problem was much more critical than that of the tourists. Respondents claimed to have seen all kinds of industrial or medical waste arriving at the island and some blamed unspecified individuals or organisations in Cambodia for doing this, in addition to that material that fell from or was disposed of by boats and ships in the area. Whether this is true or not, the respondents certainly felt there was a strong need to organize clean-up operations on all the beaches on a regular basis in order to reassure customers and all stakeholders that this is a subject that is being taken seriously. Respondents spoke about similar initiatives that are being taken on neighbouring islands (although not all the islands) and extolled the virtues of such initiatives. It was observed that Koh Mak business proprietors have access to low-cost Cambodian migrant workers and they could be used to do this work. Apparently, no special equipment is required (according to the respondents) and there are no serious health and safety issues to be considered. Such an activity would enhance the confidence of all stakeholders and would, as previously mentioned,

help to reduce or eliminate the sandfly problem because the regular walking across the beach would damage or destroy the eggs which are lodged in the sand itself.

This cleanliness issue was considered to be of considerable importance to the respondents and they thought it would have a serious impact on whether the island could have a sustainable future. It might be repeated here that the respondents have lengthy experiences with Thailand and its development and have seen other destinations follow the same life cycle and move on (as seen elsewhere) to the exploitation and then decline phases as a result.

All respondents were concerned with the prospect of cable electricity arriving on the island. This had been long promised but long delayed and the promised arrival date (2015) might yet be postponed, it was felt. In general, this would be considered a good thing and would be very popular. However, it would have mixed environmental effects. The removal of diesel-driven generators would be a good thing but the probable impact of removing incentives to use solar power would be a bad thing. Incentives to householders to generate solar power which could be fed into the island grid was considered to be the way to solve this problem.

4.2.3. Facilities

The respondents generally felt that the facilities on the island may be limited but they were just about sufficient to the need of them. In terms of health facilities, there is a small clinic with three nurses attached, although no doctor and no registered pharmacist. It was thought that the nurses could deal with most routine injuries or illnesses and that, in the event of something more serious, an ambulance boat can be urgently despatched from Koh Chang and the patient transferred to the hospital there. The small pharmacies operate from the convenience stores and are quite basic. Since most tourists do not stay on Koh Chang

very long, this is considered to be acceptable and, again, in the event of need people can travel to Koh Chang or the mainland daily to pick up vital prescriptions or other materials.

Koh Mak has neither 7-11 convenience stores nor ATMs (although credit cards are accepted). Most people seem to be able to manage this and the places where money can be changed were described as being lucrative and so those business-owners saw no need to introduce ATMs. There is the additional problem that providing an ATM would mean allocating additional resources to the island and this would not be cost-effective at present. A small post office exists to take care of basic needs. Since internet connections are relatively stable, most tourists can generally deal with urgent financial or administrative issues online.

A number of complaints were received about the educational facilities on the island but this is an issue beyond the scope of the current research.

4.2.4. Labour Market

As business-owners, the respondents were familiar with the problems involved with hiring and retaining staff. As is usually the case with business-owners, there was quite a lot of complaining about the quality of the workers, their lack of initiative and loyalty and so forth. Both local Thai workers and imported Cambodian workers were described in unfavourable ways. While respondents appreciated the additional value that well-motivated and well-trained staff could provide, they believed that there was little incentive for them to provide training because the workers treated any job as a short-term assignment which they would simply quit whenever they had achieved their objectives or found a better opportunity. To break this cycle, there would appear to be scope to create partnerships neighbouring vocational schools or universities where students are training in tourism or the service sector more generally.

It was apparent that most of the businesses operating on Koh Mak belonged to or had been operated by people originating from outside the island. Much of the cost of staying on the island depends on paying for imported food and beverages and there is, in other words, a problem involved with keeping the money in the place where it was generated.

4.2.5. Governance and Power

There is a darker side to business management by foreigners in Koh Mak, just as there is in property management of all sorts. The problems are intensified when tourist destinations are involved because these can be highly competitive and offer cash transactions. In the early stages of development, which is similar to what is occurring now on Koh Mak, the foreign investors are more or less ignored as long as they do not threaten the existing architecture of power relations and abide by the patronage networks in place (Williamson, 1992). It is only when the investors threaten the existing system that problems can begin. The respondents preferred to speak about these issues privately rather than as part of a group. Since they mostly had long-term experience of Thailand, people could remember when it was more common for people to use violence against business opponents. This has not happened n Koh Mak, according to respondents, although there was a well-known story of one incoming investor who planned a leisure business that would have been contrary to the noise restrictions. Despite several warnings from some respondents and others, the investor continued to pour millions of baht into the house and business. When finally the day came for the business to open, it lasted for only one day before the owner was convinced it had to be abandoned forever.

No specific individuals or organizations were blamed for this and, indeed, the respondents took the view that the problem was caused by the investor himself who recklessly ignored the signals from the people involved and should have known better how things work.

However, although there were some other incidents such as this, the respondents felt that the main issue was the concentrated nature of land ownership among a small number of families and that this represented a means of preventing change. Since the landowning families, it was thought, have more or less agreed among themselves to prevent any substantial changes, then the scope for market activities among the respondents was needlessly restraining their own business opportunities. At the same time, there was some concern about when change would come, perhaps from an inter-generational transfer of responsibility and what it would represent. An arrangement not to change the pattern of development might remain stable but could change very quickly if just one individual decides to change and sell out to move to Bangkok, for example.

Under these circumstances, there is a lack of transparency about the overall management of the destination at the local authority level. This is because it is difficult for outsiders to determine how power is exercised in the junction between the public and private sector and, also, how a sub-provincial unit is governed and the extent to which it can be managed differently from the remainder of the province.

Currently, there is no association of foreign business-owners (i.e. similar to the Chambers of Commerce elsewhere or the Chinese Business Associations) and so the respondents felt both that they had no way to give their opinions about the way the island is being managed and, also, to have a channel to receive information from the authorities on an official or unofficial basis. This would promote harmonious relationships and assist with planning for the future.

One example of the power of rival families in organizing the commercial activities on the island is that different families have, it was reported, created their own integrated resort areas with associated boat service and pier, with other facilities. There are, therefore, several different piers which facilitate what are, effectively, small-scale

monopolies. Tourists who have not pre-booked their accommodation are quite likely to purchase a package including boat fare at Trat or another island. As ever, monopolies discourage innovation and provide few if any incentives to improve the quality of service.

5. Implications

Since, in general, island authorities are happy with the current level of tourists coming to the island but would like business-owners the opportunity to generate more income from them, then it is necessary to identify what new goods and services could be offered to tourists that they do not currently receive.

There was very little interest among respondents for a more varied and expensive food and beverage experience, little interest in bars or clubs and little interest in high-street shopping. Within the limitations on space and noise on the island, there is some scope for additional outdoor activities, which might be land-based as well as sea-based. There is also some scope for upgrading accommodation in some areas. Some respondents observed that they would be prepared to pay more for a higher level of accommodation and such a development would help attract new market segments, such as wealthy Russian or Chinese tourists on short visits. It would seem to be impractical to try to organize a large-scale high-end tourism development project such as a yacht marina and attendant complex within the current conditions on the island.

It is necessary, therefore, to identify areas in which local production may take place to supplement the existing marketing offerings. One obvious way to do this would be to grow some small, relatively high-value vegetable items on the island which could be marketed to local providers or food and beverage, perhaps as part of a cooperative. There seemed to be little enthusiasm for this idea and there would be some practical problems to solve in terms of geography

and climate. However, it should be possible to grow some fruits and vegetables in controlled environments (e.g. greenhouses or hydroponic systems) as well as some farming of fish and seafood. At the least, this would be worth some further market research to determine what could be done and when the payback time would be achieved.

In addition, there are some other tourism-related services which are available in other resorts (e.g. hair-plaiting, beach massages and so forth) which might be encouraged. In general, the level of service from some of the lower-paid staff members in different locations could be improved and they might be able to generate more income if they could be retained on a longer-term basis and encouraged to participate in some of these value-added service activities.

There is also the need to identify other forms of goods and services which can be generated internally as a means of contributing to social capital on the island. Successful tourism destination management depends to some extent on the stable allocation of resources, the provision of genuine social capital and a good level of connectivity. Since the island is governed to a considerable extent by a group of landowners who have settled on stability as a guiding principle, this is not a problem. In terms of connectivity, this is generally good and likely to become better as time continues and more marketization of the tourism industry takes place. It is already possible to move between the islands, to the mainland and on to Bangkok or else to Cambodia without too much difficulty. There is plenty of information about how to go from place to place and where to stay, which is supplemented by resort representatives meeting visitors arriving by boat. Internet connectivity is acceptable although will need to be improved nationwide in due course. As a result, the most pressing need is for additional social capital that will act as a new form of entertainment to attract visitors and which can, in due turn, be monetized.

The term 'social capital' refers to any form of activity involving people which is not market-based and which has existed for some time. The production of handicrafts falls into social capital since these were originally intended for domestic use or small-scale exchange. So, tourists are happy to buy such things. Other activities include organizing festivals, ritual dancing, meeting each other in a communal area such as a park or riverside bank (as happens in Phnom Penh and, to a lesser extent, Vientiane and is being created in Chiang Khan. To some extent, social capital can be invented but it takes some time for tourists to be willing to consider it to be an authentic activity. The naga fireball event on the River Mekong is only a few years old but is now accepted as a real life social capital event. The first step, then, is to identify areas of existing social capital, developing them so that they are accessible and well-known and then seeking ways to monetize them - through merchandising, paying to participate and so forth. Further development is required in this area.

In terms of the low carbon destination concept, it is evident that there is little scope in marketing it to international tourists, although there may be more scope for marketing it to Thai tourists who will be less aware of the issues and technology involved. More activities should take place on the supply side, with business-owners and general residents being encouraged to take on more solar panels and other forms of activity aimed at boosting renewable energy production. Additional steps to promote effective recycling and reducing waste will also be helpful.

6. Recommendations

In Thailand, a great deal of valuable and important research work is commissioned and conducted and the reports received and results noted. However, there is very often a problem that the results of the research are not followed-up through monitoring and evaluation

processes. As a result, it can be very difficult for both research providers and the commissioners of research to determine which projects have produced usable and effective results and which have not. The first recommendation, therefore, is that there should be some mechanism instituted which follows-up the current research project to monitor changes and development and to evaluate what differences (according to a variety of perspectives) any subsequent changes have made.

Second, there are various additional research questions which should be investigated and, inevitably, one of the recommendations of a research project is that more research should be conducted.

One of the principal findings of this research project is that tourists, currently, have very limited awareness of the activities contributing to the low carbon destination concept but generally are supportive of them. The level of knowledge varies considerably between those tourists from Europe and those from Thailand (there are, of course, other tourists but these are the dominant cohorts). The European tourists are very familiar with the issues relating to global climate change and the role of renewable energy sources in seeking to combat it. They may not be active in this area but they (generally) do not oppose it. By contrast, Thai tourists know very little about the subject and, although they might be supportive, they do not really know enough to be able to make mature judgments. This means that, for European tourists, informing them of what has been done to make Koh Mak a low carbon destination will be a good thing but will not make much difference to their decision whether to visit there or not. Thai tourists are different in this regard: there is a new sector of Thai tourists who can be made to be interested in environmental issues who might use that as a criterion for visiting. The difficult part of this issue is that these would be tourists who would spend relatively little during a visit.

A second important finding is that the low carbon destination is a good idea and welcomed by important stakeholders but its effects are

contradicted by other aspects of family life, such as the use of inefficient vehicles, imports of food and water and other aspects of life which challenge the concept of sustainable development under the current model. More efforts should be made to integrate the low carbon concept on Koh Mak into other forms of environmental protection so that a more combined approach can be promoted. When people become aware of the issues relating to island life, they are (according to the research results) generally understanding and supportive of the issues faced and (just as in other parts of the world) willing to make meaningful and practical changes to try to improve the situation. DASTA, as well as supporting stakeholders, can take bold steps to promote environmental awareness and willingness to change in the knowledge that such approaches are supported by all important stakeholders - in some countries, regions or provinces, promoting environmental awareness represents a challenge to existing political power structures but research suggests this is not the case for Koh Mak. Consequently, it can be expected that influential local people can be brought onside to support pro-environmental campaigns because these can be used to promote their own interests.

Thirdly, it seems that the good which is being done is being done in stealth - i.e. most international tourists are unaware of it and to make them aware of it would be very expensive and, possibly, so expensive that improving the situation would counteract the positive effects that the low carbon concept has so far achieved. As a result, it is recommended that low cost approaches to promoting the concept among important stakeholders be sought. This will focus mostly on the supply side of tourism services. Since it is the supply side that is involved, it would not be necessary for high quality products to be involved.

Finally, there is a great deal of knowledge and understanding in the foreign community on the island which is not currently being

incorporated into thinking at the local authority level. A way might be found to tap into this knowledge and understanding without, necessarily, empowering the overseas community. Foreign investors have many energetic and interesting ideas but those are ideas which are not fully commensurate with the best interests of all members of the island community. A foreign business association with some input into island-level governance might be a useful aspiration.

7. References

"Koh Mak History," Kohmak.com (2014), available at: http://www. kohmak.com/.

"Rubber Futures Fall to Five-Year Low," *Bangkok Post* (April 19th, 2014), available at: http://www.bangkokpost.com/business/news/ 405591/rubber-futures-slump-to-five-year-low.

Choy, Dexter J.L., "The Quality of Tourism Employment," *Tourism Management,* Vol.16, No.2 (March, 1995), pp.129-37.

Cohen, Eric, "Marginal Paradises: Bungalow Tourism on the Islands of Southern Thailand," *Annals of Tourism Research,* Vol.9, No.2 (1982), pp.189-228.

DASTA, "History" (2013), available at: http://dasta.or.th/en/about-eng.html.

Keddie, Amanda, "Research with Young Children: The Use of an Affinity Group Approach to Explore the Social Dynamics of Peer Culture," *British Journal of Sociology and Education,* Vol.25, No.1 (2004), pp.35-51.

Kroh, Kiley, "Germany Breaks Its Own Power for Solar Power Generation," ClimateProgress (August 22nd, 2013), available at: http:// thinkprogress.org/climate/2013/08/22/2508191/germany-solar-generation-record/.

McGrath, Matt, "Can Germany Afford Its 'Energy Bender' Shift to Green Power?" *BBC News Online* (July 10th, 2013), available at: http://www.bbc.com/news/science-environment-23127175.

Natsuda, Kaoru, Kunio Igusa, Aree Wiboonpongse and John Thorburn, "One Village One Product - Rural Development Strategy in Asia: The Case of OTOP in Thailand," *Canadian Journal of Development Studies,* Vol.33, No.3 (2012), pp.369-85.

Richards, Greg and Julie Wilson, "Developing Creativity in Tourist Experiences: A Solution to the Serial Reproduction of Culture?" *Tourism Management,* Vol.27, No.6 (December, 2006), pp.1209-23.

Song, Sophie, "Thailand Solar Frenzy: Government Subsidy Spurs Investment Frenzy," *International Business Times* (November 8th, 2013), available at: http://www.ibtimes.com/thailand-solar-energy-government-subsidy-spurs-investment-frenzy-1462378.

Southiseng, Nittana and John Walsh, "Study of Tourism and Labour in Luang Prabang Province," *Journal of Lao Studies,* Vol.2, No.1 (January, 2011), pp.45-65, available at: http://laojournal.org/index.php/promote/article/view/16/16.

Tourism Authority of Thailand, "Thailand Welcomed 26.7 Million Visitor Arrivals in 2013, Exceeding Target," *TATNews* (January 14th, 2014), available at: http://www.tatnews.org/thailand-welcomed-26-7-million-visitor-arrivals-in-2013-exceeding-target/.

Williamson, Peter A.T., "Tourist Developers on Koh Samui, Thailand," *Journal of Cultural Geography,* Vol.12, No.2 (1992), pp.53-64.

A Comparative Analysis of Tourism Industry Competitiveness between Thailand and Selected Asian Countries[1]

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ABSTRACT

The main objective of this study is (1) to review the situation of tourism in the world, selected Asian countries, and Thailand, (2) to conduct a comparative study of the competitiveness and the potential of tourism industry in Thailand and those in selected Asian countries, and (3) to prepare policy proposals for capacity and competitiveness development for Thailand's tourism industry by comparing the advantages of the tourism industry of Thailand and the selected Asian countries, namely Malaysia, Singapore, Indonesia, the Philippines, Vietnam, China, South Korea, Japan, Hong Kong and Macau, using Revealed Comparative Advantage (RCA), the tourism income generator efficiency index, and the overnight attractiveness efficiency index.

This study finds that Thailand has an advantage on all 3 indices of Tourism Industry Competitiveness over Asian countries covered by this study. In particular, comparing to the selected Asian countries, Thailand is ranked first in Overnight attractiveness efficiency index. Thailand is also ranked third in RCA Index, and forth in Tourism income generator efficiency index. This study finds that Thailand has comparative advantage in tourism industry over Asian countries for a continued period of time. The reason Thailand has an advantage on all of the indices of Tourism Industry Competitiveness is that Thailand has a wide range of assets that are distinctive from other Asian countries.

1. Introduction

At present, the trend of international tourism is changing. The United Nations World Tourism Organization (UNWTO) predicts that by 2020, the number of international tourists will reach 1,600 million. The region which is likely to become a popular destination is the East Asian and Pacific region. Moreover, the countries in South East Asia are the new tourist destinations with increasing number of visitors every year. The number of international tourists increases to 1,087 million in 2013, increasing from 2012 by 52 million (representing 5.02 percent increase).

According to the UNWTO, the number of tourists visiting Asia and Pacific region increases from 233 million from 2012 to 248.7 million in 2013, representing a 6.5 percent increase. The South East Asian region's number of visiting tourists increases from 84.2 million in 2012 to 93.1 million in 2013 (or a 10.6 percent increase), representing the world's highest growth rate in number of visitors for a region (UNWTO, 2014).

The increase in number of tourists visiting South East Asia leads to a corresponding increase in number of tourists and income from tourism in Thailand, making tourism an important sector for the Thai economy

and society. The National Tourism Development Plan for 2012 - 2016 aims to increase Thailand's competitiveness in tourism by at least 5 ranks, or to be ranked between 1st - 7th in Asia (Ministry of Tourism and Sports, 2011). However, according to the World Economic Forum (WEF) assessment of tourism in 140 countries in 2013 it was found that Thailand is ranked 43rd in the world, and ranked 9th in Asia.

From the report on international tourism between 2003 - 2013, it was reported that the number of international tourists visiting Thailand increases continually from 10,004,453 people in 2003 to 26,546,725 in 2013. Meanwhile, the tourism receipts increases from 324,733 million baht in 2003 to 1,207,145 million baht in 2013 (Table 1).

Table 1 Tourism statistics of Thailand between 2003 -2013

Year	International tourist arrivals	Tourism receipts (million baht)	Average spending baht/day	Average length of stay (days)
2003	10,004,453	324,733	3,775	8.19
2004	11,650,703	403,578	4,058	8.13
2005	11,516,936	385,749	3,890	8.20
2006	13,821,802	506,435	4,048	8.62
2007	14,464,228	547,781	4,121	n.a.
2008	14,584,220	574,520	4,142	9.51
2009	14,149,841	510,255	4,011	8.99
2010	15,936,400	592,794	4,079	9.12
2011	19,230,470	776,217	4,187	9.64
2012	22,353,903	983,928	4,393	10.02
2013	26,546,725	1,207,145	4,616	9.85

Source: Tourism Authority of Thailand (2003 - 2007)
              Department of Tourism, Ministry of Tourism and Sports (2008 - 2013)

Nonetheless, despite the increasing trend of number of tourists and receipts from tourism, the current political situation and recent changes pose a challenge for competitiveness development in the tourism sector in many aspects as follows.

1. National Tourism Development Plan for 2012 - 2016 aims to improve the rank of Thailand to be ranked between 1st - 7th in Asia. But currently Thailand is ranked 9th in Asia, and ranked 43rd in the world.

2. Although tourism resources in Thailand is diverse and among the most beautiful in the world, our neighboring countries also have developed their tourist sites to become as beautiful as the ones in Thailand.

3. Thailand has high political instability. Coupled with the natural disasters created by Climate Change, tourists have increasing concerns about the safety in life and property.

4. Thailand is weak in terms of safety, environmental regulations, health codes, and government regulation. In 2013, WEF ranked Thailand's tourism competitiveness relatively low in many respects, e.g. environmental sustainability (99th rank), ICT infrastructure (90th rank), security (87th rank), health and hygiene (84th rank), and government policy and regulation (77th rank).

2. Research Methodology

2.1 Revealed Comparative Advantage (RCA) index.

$$RCA = (\quad / \quad)(\quad / \quad)$$

RCA   is Revealed Comparative Advantage
X_{ti} is export value of tourism industry of Country i in USD
X_{si} is export value of services industry of Country i in USD
X_{tw} is export value of tourism industry of the world in USD
X_{sw} is export value of services industry of the world in USD

If RCA is greater than 1 (RCA>1), Country i has comparative advantage in its tourism sector. If RCA is less than 1 (RCA<1), Country $_i$ is at a disadvantage in its tourism sector.

2.2 Tourism income generator efficiency index.

$$\frac{\text{Average income generated per tourist visit in USD of Country}_i}{\text{Average income generated per tourist visit in USD of the countries covered by this study}}$$

If the index is greater than 1, Country i has comparative advantage in income generation in its tourism sector. If the index is less than 1, Country $_i$ is at a disadvantage in income generation in its tourism sector.

2.3 Overnight attractiveness efficiency index.

$$\frac{\text{Average length of stay of foreign tourist in Country}_i}{\text{Average length of stay of foreign tourist in the countries covered by this study}}$$

If the index is greater than 1, it means that Country i has a comparative advantage in attracting tourists to stay. If the index is less than 1, it means that Country i is at a disadvantage in attracting tourists to stay.
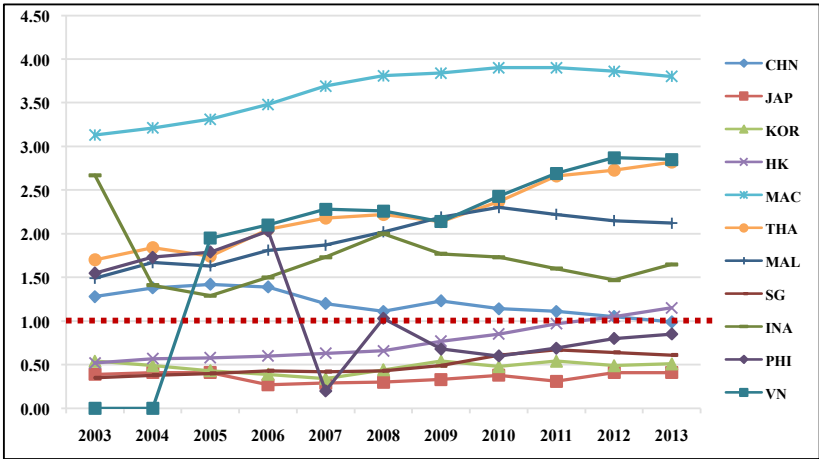
3. Results

Figure 1 Revealed Comparative Advantage (RCA)

From figure 1, the analysis of RCA in tourism industries of key Asian countries are undertaken in 2 periods. It is discovered that in the first period (2003 - 2005), the country with the most advantage is Macau, followed by Indonesia, Thailand, the Philippines, Malaysia and China respectively. The countries with the most disadvantage during this period are Singapore and Japan. From the study's analysis, it is found that Macau, Indonesia, Thailand, the Philippines, Malaysia and China were at an advantage due to the relatively high export value of tourism sector compared to the value of other services. Moreover, Macau has a feature in generating income from tourism through casinos and hotels, which results in Macau having the most advantage during that time.

For the second period (2011 - 2013), the country with the highest advantage was Macau followed by Vietnam, Thailand, Malaysia, Indonesia and China respectively. By Contrast, the countries with the most disadvantages during that period are the Philippines and Singapore. The study's analysis is that high export value of tourism product since 2013 is the factor making Vietnam, Thailand, Malaysia, Indonesia and China have advantage than other countries especially, Vietnam which ranked second in Revealed Comparative Advantage (average RCA=2.80) resulting from opening country and the development plan of tourism sector of the Vietnam's government including cooperation with neighbor countries through many project to enhance tourism sector.

Table 2 Analysis of RCA on tourism industry

Country	RCA Average		Analysis of RCA
	2003 - 2005	2011 - 2013	
China	1.36	1.05	Continue to be at advantage, but declining
Indonesia	1.79	1.57	
South Korea	0.49	0.51	Continue to be at disadvantage, but improving
Singapore	0.38	0.64	
Macau	3.22	3.85	Always at advantage, and improving
Thailand	1.76	2.74	
Malaysia	1.60	2.16	
Vietnam	1.95*	2.80	
Japan	0.40	0.38	Continue to be at disadvantage, and declining
Hong Kong	0.56	1.06	At disadvantage during first 3 years, but at advantage during last 3 years
The Philippines	1.69	0.78	At advantage during first 3 years, but at disadvantage during last 3 years

**Note:** *RCA index of Vietnam from 2005 only

Figure 2 Tourism income generator efficiency index
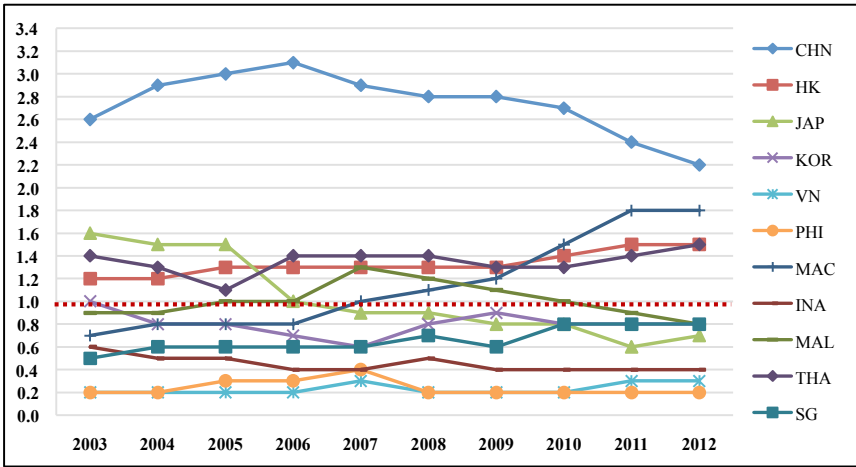
From figure 2, the analysis of Tourism income generator efficiency (Index >1) of key Asian countries are undertaken in 2 periods. It is discovered that in the first period under this study (2003 - 2005), the country with the most advantage is China, followed by Japan, Thailand, and Hong Kong respectively. The countries with the most disadvantage during this period are Vietnam and the Philippines. From the study's analysis, it is found that Japan, China, Thailand, and Hong Kong were at an advantage due to the relatively high export value of tourism sector compared to the value of other services. The reason is that these countries receive on average a level of income per tourist visit higher than other countries. China also has a wide range of tourist products and services. Japan has a high cost of living, making it expensive for tourists to visit, regardless of having fewer number of tourists than China. Furthermore, Thailand has a variety of unique tourist products and services, such as souvenirs, handicraft, spa business, and clothing etc. Hong Kong is also a destination for brand name shopping.

For the last 3 years covered by this study (2011 - 2013), the country with the highest advantage on tourism income generation on average was China followed by Macau, Hong Kong and Thailand respectively. By Contrast, the countries with the most disadvantages during that period are the Philippines and Vietnam. The study's analysis is that China, Macau, Hong Kong and Thailand have advantage than other countries on tourism income generation as a result of being able to earn relatively more from a tourist visit, as well as having ICT technology, tourism marketing, good transportation, internet/ WiFi services, a variety of tourist activities which suit the interest of wide range of visitors, such as adventurers, nature tourists, religions, sports, spa, handicrafts, entertainment, casinos, and amusement park.

Figure 3 Overnight attractiveness efficiency index
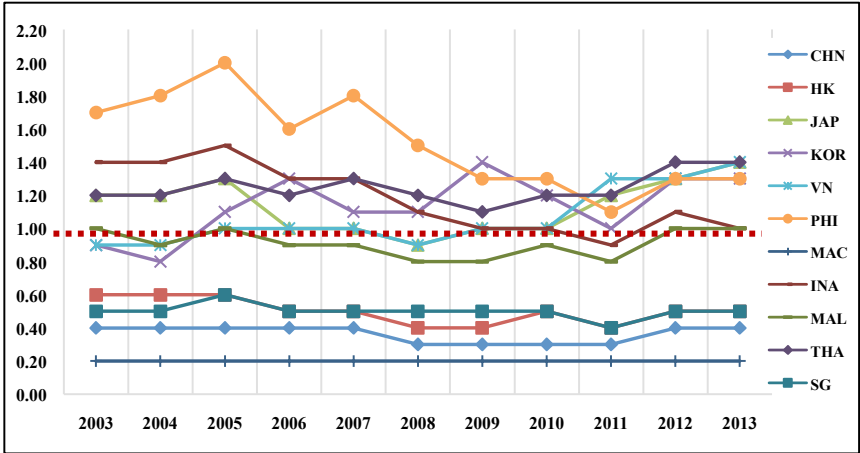
From figure 3, the analysis of Overnight attractiveness efficiency of key Asian countries are undertaken in 2 periods. It is discovered that in the first period under this study (2003 - 2005), the country with the most advantage is the Philippines, followed by Indonesia, Thailand, and Japan respectively. The countries with the most disadvantage during this period are Macau and China. From the study's analysis, it is found that the Philippines, Indonesia, Thailand, and Japan were at an advantage on Overnight attractiveness efficiency. The reason for this is the diverse geographic condition, especially the Philippines and Indonesia, which are islands and require a long time to travel, making the length of stay relatively longer. Meanwhile, despite having a high level of cost of living, Japan has a long average length of stay as it has a variety of attractions and convenient transport system nationwide. As for Thailand, the factors which attract tourists to stay for a long time include a wide range of tourism resources, including the sea, islands, beaches, waterfall, mountain, etc.

For the last 3 years covered by this study (2011 - 2013), the country with the highest advantage on Overnight attractiveness efficiency was Thailand and Vietnam followed by Japan, the Philippines, South Korea and Indonesia. By Contrast, the countries with the most disadvantages during that period are Macau and China. The study's analysis is that Hong Kong and South Korea are the countries whose advantages are improving. Hong Kong has a number of new tourist attractions, such as Hong Kong Disneyland and shopping districts which can attract tourists to stay longer by using marketing strategy through TV series. Moreover, Thailand, Vietnam and the Philippines, and Japan has a continued advantage on overnight attractiveness, as these countries have a wide range of tourism resources, such as mountains, sea, waterfall, and man-made tourist attractions, and relatively inexpensive cost of travel (except for Japan). This gives these countries an advantage in tourism industry.

4. Conclusion and Recommendation

Thailand has an advantage on all 3 indices of Tourism Industry Competitiveness over Asian countries covered by this study. In particular, comparing to the selected Asian countries, Thailand is 1st in Overnight attractiveness efficiency index. Thailand is also 3rd in RCA Index, and 4th in Tourism income generator efficiency index. This study finds that Thailand has comparative advantage in tourism industry over Asian countries for a continued period of time. The reason Thailand has an advantage on all of the indices of Tourism Industry Competitiveness is that Thailand has a wide range of assets that are distinctive from other Asian countries, such as tourist attractions, spas, the seaside, islands, etc. In order to develop Thailand's tourism industry to enhance its competitiveness during the AEC, everyone should cooperate and contribute to the effort. Therefore, the recommendations for creating competitiveness are as follows:

1. Develop the quality of services and products of tourism, tourism marketing, AEC grouping of tourism market to become larger, as well as developing infrastructure, domestic transport network, including land, maritime, and air, to link the tourist routes.

2. Improve the quality of workforce in developing the quality of products and tourism products, souvenir, while maintaining the Thai identity to remain distinct.

3. Develop new tourist destinations or creating new activities that are distinctive and interesting to serve as new tourist attractions in the country's tourism industry for tourists who have visited Thailand before or have reasons to stay longer;

4. Emphasize development of creative tourism as the tool for sustainable tourism development, with emphasis on creating values for tourism resources on the basis of "Thainess", such as the Thai way of life, local wisdom, art, culture and history;

5. Create confidence in the country's stability should be promptly built. At the same time, safety in life and property must be established in earnest so as to reassure tourists, and the relevant government agencies in tourism sector should cooperate on this objective.

5. Reference

[1] Ministry of Tourism and Sports (2014). Tourism situation in September 2014. Bangkok

[2] Ministry of Tourism and Sports (2014). The National Tourism Development Plan for 2012 - 2016. Bangkok

[3] United Nation World Tourism Organization (UNWTO). (2013) Statistic & Tourism. Retrieved October, 12, 2013, from http://www.unwto.org/asia/index.php

[4] World Economic Forum. (2013). The Travel & Tourism Competitiveness Report. Retrieved October, 15, 2013, from http://www.weforum.org/

[5] UNCTAD Handbook of Statistics. (2013). Average Length of Stay. Retrieved October, 15, 2013, from http://www.nationsencyclopedia.com/WorldStats/UNCTAD- average-length-stay-visitors.html

[6] World Trade Organization. (2013). Trade in commercial services. Retrieved October, 15, 2013, from http://stat.wto.org/Statistical Program/WSDBViewData.aspx? Language=E