Nonnadhi Dulyadaweesid
Mahidol University

Somboon Sirisunhirun
Mahidol University

The development of sustainable tourism indicators in Thailand

This research aims to develop factors and indicators of sustainable tourism and to propose public policies on sustainable tourism in Thailand. Quantitative and qualitative methods were employed, and data was collected from 400 people who live in 13 model communities of Designated Areas for Sustainable Tourism Administration (Public Organisation). The data analysis was carried out by exploratory factor analysis (EFA), using a principal component analysis together with varimax with the Kaiser Normalisation rotation method. The results indicated six factors, with 99 indicators of sustainable tourism in Thailand: (1) Entrepreneur and community (28 indicators); (2) Public policy and public management (21 indicators); (3) Natural resource and environment (28 indicators); (4) Tourist (10 indicators); (5) Economic condition (7 indicators); and (6) Society and culture (5 indicators).

Nonnadhi Dulyadaweesid
Public Policy and Public Management Program, Department of Social Sciences
Faculty of Social Sciences and Humanities
Mahidol University
999 Phuttamonthon 4 Road
Salaya
Nakhon Pathom ,73170
Thailand
Phone: [66] 9 85289874
Email: nonnadhi@gmail.com

Somboon Sirisunhirun
Public Policy and Public Management Program, Department of Social Sciences
Faculty of Social Sciences and Humanities
Mahidol University
999 Phuttamonthon 4 Road
Salaya
Nakhon Pathom ,73170
Thailand
Phone: [66] 98 9165624
Email: somboon.sir@mahidol.ac.th

Nonnadhi Dulyadaweesid is Ph.D. Student of Doctor of Public Administration Public Policy and Public Management Program, Department of Social Sciences Faculty of Social Sciences and Humanities Mahidol University, Thailand.

Somboon Sirisunhirun is an Associate Professor of Public Policy and Public Management Program, Department of Social Sciences Mahidol University, Thailand.

Introduction

Thailand's tourism industry is a major source of income in the service industry and contributes greatly to the country's economic growth. According to data from the Ministry of Tourism and Sports in 2016, there were 32,588,303 foreign tourists who visited Thailand that year, which generated revenue of 2,520,000 million baht. It is expected that the number of foreign tourists will grow by eight to ten percent in 2017, which is consistent with the expected increase in total number of international tourists around the world by five to six percent in 2017 (Department of Tourism - Ministry of Tourism and Sports, 2016).

However, many tourist attractions are being degraded due to the misuse of resources. A lack of planning and overuse of the resources has accelerated the degradation. In addition, there has been a lack of preparedness in tourism management with reference to natural resource conservation and sustainable tourism plans. The result of undirected developments is affecting the ecosystem and the natural equilibrium. Furthermore, many mega projects of the government involve the misuse of land and resources; the government frequently ignores the Environmental Impact Assessments (EIA) and they do not take the natural resources into account when promulgating development policies.

In many areas, the infrastructure and environmental management do not meet the standards. Infrastructure, such as roads and public toilets, have become degraded through the lack of a good maintenance. Furthermore, there has been a lack of a good management and planning, as well as a lack of a support in the investment in physical and environmental infrastructure. For example, wastewater collection and treatment systems and waste disposal should be integrally planned with the collaboration of the stakeholders in the implementation of any policies and plans to meet the standards. In addition, it is necessary to implement policies that correspond to the needs of sustainable tourism, which aims at combining economic development and social development together, and in providing environmental protection.

To be precise, policies need to take care of the important tourist sites that attract many tourists every day, and administrators should be directed to provide good waste disposal systems. Additionally, they should offer waste sorting systems to classify the dry garbage, wet garbage, toxic garbage and recyclable garbage. They should encourage the reuse and recycling of the garbage. In particular, it was found that support from the government for the development of tourism destinations over several years as part of the National Economic and

Social Development Plan has been based on economic-centric policy. Policies that have focused too much on materialism and infrastructure development are one of the reasons for the destruction of natural resources and the degradation of many tourist attractions.

Thailand has also revised its tourism promotion policy in line with the Globe '90 Conference, an international conference on environment and sustainable development, held in Vancouver, Canada in March 1990. At the conference, sustainable tourism development was defined as "development that can meet the needs of tourists and owners". Since 1987, the Tourism Authority of Thailand (TAT) has received a budget for tourism conservation, and a lot of research has been done to plan for sustainable tourism development that will develop and conserve tourism resources along the way. Moreover, there was the announcement of Agenda 21 in part of the Travel and Tourism Industry after the Earth Summit in Brazil on June 14, 1992.

This agenda has played an important role in fostering cooperation between the public and the private sectors involved in the establishment of the system and processes for coordinating sustainable development. It covers topics from decision-making levels to the identification of necessary practices. This is also consistent with the National Tourism Development Plan 2012 – 2016 that aims to restore and support the tourism sector to grow sustainably, as well as to accelerate and build the potential to generate income from tourism. This will develop the Thai tourism sector to be ready in terms of quality and competition. This will help generate income and alleviate income inequality alongside the sustainable development, based on preventing and correcting the impact from tourism in accordance with domestic and international situations and the 11th National Economic and Social Development Plan (2012-2016).

The development of tourist attractions by the government and entrepreneurs nowadays is an economic-centric development; the only focus is to generate income from the investment only. Furthermore, the common assets of the community, such as water, soil, and forests, have become investment capital. Those responsible for the development do not take the natural cost, environmental impacts or other impacts into account, nor are they planning or implementing good systems from the beginning. Therefore, it is necessary to set the direction of sustainable tourism development by adopting ecology-centered systems to carry out sustainable tourism activities in the framework of the use of natural resources in using cost-

effective and appropriate means. The implementation of sustainable tourism underlines that the people in the communities play an important role in the management of tourism resources by considering the real needs of the community. This can lead to the cooperation of the community to preserve the natural resources, environment, art, culture, tradition, and wisdom of the community in a sustainable fashion.

It is clear that the concept of sustainable tourism is embraced by many countries around the world because this concept aims to enable the tourism sector to sustainably generate income for the country by developing and conserving tourism destinations in the long term and focusing on participation of local community residents to take care of and manage their own tourism attractions - as they are the ones who know and best understand the needs of their community.

Thus, the practice of sustainable tourism and public policies for sustainable tourism, which will be set up in the future, should be grounded in a Thai context. The rationale for contextualisation is based on the notion that success is more likely when there is consistency between public policies and practices that are accepted by public sector leaders who are responsible for policy implementation, developing sustainable tourism- related activities. Indicators should be flexible and adaptable to suit the situation and the context of the target area. Sustainable tourism is a highly complex activity that requires effective decision making on the basis of the competing economic, social and environmental demands of sustainable development. This is why the development of sustainable tourism indicators in Thailand, which will lead to a sustainable public policy for sustainable tourism, should be studied. The research benefits are expected to be that factors and indicators of sustainable tourism in Thailand will be developed, and public policies on sustainable tourism in Thailand will be proposed.

Research scope

Scope of study area - In this research, the researcher studied seven provinces of Thailand: Nan, Trad, Chonburi, Kamphaeng Phet, Sukhothai, Loei and Chiang Mai. Data was collected from people who live in 13 model communities of Designated Areas for Sustainable Tourism Administration, or DASTA (Public Organisation).

Scope of study duration - The study period lasted approximately 12 months.

Scope of population and samples - The population in this research is divided into three groups based on the research process:

1) Ten experts from five organizations -- the Ministry of Tourism and Sports, the Tourism Authority of Thailand (or TAT), the Designated Areas for Sustainable Tourism Administration (Public Organization) (or DASTA), the Office of the National Economic and Social Development Board (or NESDB), and universities with expertise in tourism management were interviewed in order to determine the conceptual framework for this research. Purposive sampling elected two experts from each group.

2) Residents of the 13 model communities of DASTA. Information from 400 people was collected, based on the Yamane sample-size table (Yamane, 1973).

3) Seventeen experts from three groups of people were selected to be interviewed -- Group 1: six administrators in public or private sectors; group 2: six scholars; group 3: five residents in prototyped communities under DASTA, in order to confirm factors and indicators of sustainable tourism in Thailand and to determine the internal validity of the research.

Research process

To ensure that the research was conducted in accordance with the research methodology, and in line with the objectives of the research, the researcher defined the research process as follows:

Step 1 - Documents, journals, textbooks, research papers related to sustainable tourism concepts and theories on sustainable tourism practices, and indicators from public and private organizations in Thailand and abroad were reviewed, studied and analysed.

Step 2 – A summary of the data obtained from the study was used to construct a research conceptual framework using content analysis, in order to design a semi-structured interview schedule for the in-depth interviews with the ten experts. Information related to indicators of sustainable tourism in Thailand from step 1 and results of the interview in step 2 were used to determine variables to study in this research. Then these variables were used to construct the questionnaire using as a research tool in the next step.

Step 3 - The content validity of the questionnaire was confirmed by five experts. Then the Index of Item-Objective Congruence (IOC) was calculated. Questions with IOC less than 0.5 were revised according to experts' recommendations. The revised questionnaire was then tested with 30 sample participants from among officers working in DASTA, Department of Tourism, Ministry of Tourism and Sports and Tourism Authority of Thailand. The samples used in this pilot study were not the same samples used for hypothesis testing. After that, the

reliability of the questionnaire was tested using Cronbach's alpha coefficient and was equal to 0.945.

Step 4 - The questionnaire was finalised and used to collect data from the sample 400 people living in 13 model communities of DASTA. The data analysis was carried out by exploratory factor analysis using a principal component analysis in order to find factors and indicators of sustainable tourism in Thailand. The researcher presented a draft of Thailand's sustainable tourism indicators from Step 3 and a public policy proposal on sustainable tourism to experts. Experts were also interviewed to examine and confirm the reliability and validity of the indicators based on theoretical validity, contextual fit, and the possibility of implementation. The researcher received all suggestions and used them to improve the indicators make them more complete.

Step 5 - The researcher used the indicators that were confirmed by the experts, along with comments and suggestions received from interviews with qualified experts, to conclude and summarise as a public policy proposal for sustainable tourism for the public sector, private sector and local people. Then the researcher presented this policy proposal to the experts again for comment, and to confirm the appropriateness and possibility of the implementation of this indicator, and to determine the accuracy of the policy proposal.

Summary of the mean and standard deviation of the indicators

The mean of the 150 variables is 4.00 and the standard deviation (SD) is 0.79, meaning that the average level of support from the sample respondents ranges from high to very high. When considering each variable, it was found that the variable with the highest mean is variable number 43, which is: "having tourism activities that do not result in cultural and historical sources decline", for example, not causing waste that adversely affects the scenery. The mean of this variable is 4.6098 and the standard deviation (SD) is 0.64817. The variable with the lowest mean is variable number 36, which is "organising meetings between those responsible for tourism management and those involved in tourism activities". The mean of this variable is 3.5090 and the standard deviation (SD) is 0.81869.

Table 1: Results of the exploratory factor analysis (EFA): KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.970
Bartlett's Test of Sphericity	Approx. Chi-Square	145729.816
	df	11175
	Sig.	.000

As can be seen in table 1, the value of KMO (Kaiser-Meyer-Olkin Measure of sampling adequacy) is 0.97 (greater than 0.5 and close to 1). Moreover, using Bartlett's Test of Sphericity, it was found that all variables are significantly correlated (Chi-Square = 145729.816, df $= 11175$, P-Value < 0.05). This illustrates that a correlation matrix of the variables involved indicated a strong correlation which is suitable for factor analysis.

Table 2: Results of the exploratory factor analysis (EFA): Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	31.544	21.030	21.030	31.544	21.030	21.030	20.468	13.645	13.645
2	15.085	10.057	31.087	15.085	10.057	31.087	7.214	4.810	18.455
3	6.966	4.644	35.731	6.966	4.644	35.731	6.182	4.121	22.576
4	3.520	2.347	38.077	3.520	2.347	38.077	5.670	3.780	26.356
5	2.646	1.764	39.841	2.646	1.764	39.841	4.630	3.087	29.443
6	1.826	1.218	45.208	1.826	1.218	45.208	4.459	2.973	32.416

Using the analysis, it was found that there are six factors with eigenvalues greater than 1, and the proportion of the total variation explained by these six factors is 32.416 percent.

When selecting how many factors to include in a model, three criteria were used. Firstly, after computing the eigenvalues, those with a value greater than 1 were selected. Secondly, the factor loading of each variable in the factor must be greater than 0.5. Thirdly, a factor should have at least three variables according to Kaiser's criterion. Using these criteria, six factors with 99 variables and 51 variables were removed from the 150-question questionnaire about sustainable tourism.

Six factors were derived from factor analysis which should allow sustainable tourism indicators of Thailand to be developed from the research, using 400 samples from three groups of people. Indicators in each factor all have factor loading ranging from $0.50 - 0.825$. There are 28 variables for the first factor, 21 variables for the second factor, 28 variables for the third factor, 10 variables for the fourth factor, 7 variables for the fifth factor, and 6 variables for the sixth factor.

The first component comprises 28 variables, with component values between 0.825 to 0.516, 20.65% of Eigenvalues, and 13.65% of Variance, showing that the 28 variables describe the components most effectively, and explain the percentage of variance at 13.65. Compared to the Eigenvalues of the other components, this component was determined to have the highest priority. When analyzing each variable, it was found that variable no. 60, the availability of the activities that create recognition in local identity, achieved the highest value at .825 while variable no. 64, the availability of local tourist sites that can support future expansion and development, had the lowest value at .516. After considering all the relevant variables, the researcher labeled the first component **"**the component relating to entrepreneurs and communities**".**

The second component comprises 21 variables with component values between 0.698-0.503, 7.21% of Eigenvalues, and 4.81% of Variance. Compared to the Eigenvalues of the other components, this component was determined to have the second highest priority. When analyzing each variable, it was found that variable no. 129, the tourist sites have good-quality facilities sufficient to the needs of the tourists in every season, achieved the highest value at 0.698 while variable no. 130, the regular and effective improvement and renovation of the tourist sites, had the lowest value at .503. After considering all the relevant variables, the researcher labeled the second component **"**the component relating to public policy and public management**".**

The third component comprises 28 variables with component values between 0.716-0.552, 6.18% of Eigenvalues, and 4.12% of Variance, showing that the 28 variables describe

the components most effectively and explain the percentage of variance at 4.12. Compared to the Eigenvalues of the other components, this component was determined to have the third highest priority. When analyzing each variable, it was found that variable no.33, the availability of the plan to promote local materials and local arts and crafts, which do not destroy the environment, achieved the highest value at 0.716. Variable no.19, maintenance that strictly and thoroughly nourishes the nature area, had the lowest value at .552. After considering all the relevant variables, the researcher labeled the third component as "the component relating to natural resources and environment".

The fourth component comprises 10 variables with component values between 0.695-0.506, 5.67% of Eigenvalues, and 3.78% of Variance showing that the 10 variables describe the components most effectively and explain the percentage of variance at 3.78. Compared to the Eigenvalues of the other components, this component was determined to have the fourth highest priority. When analyzing each variable, it was found that variable no. 89, the opportunities for the local people or the Local Administrative Organizations/local collaborative networks to sell local products to the tourists, achieved the highest value at 0.695while variable no. 121, the opportunities given to the tourist to participate in the local conservation and restoration activities, had the lowest value at .506. After considering all the relevant variables, the researcher labeled the fourth component as "the component relating to tourists".

The fifth component comprises 7 variables with component values between 0.642-0.502, 4.63% of Eigenvalues, and 3.09% of Variance, showing that the 7 variables describe the components most effectively and explain the percentage of variance at 3.09. Compared to the Eigenvalues of the other components, this component was determined to have the fifth highest priority. When analyzing each variable, it was found that variable no.1, Fair income, and profit share distribution, achieved the highest value at 0.642 while variable no.4, support in promoting local products in tourism activities such as food, fruits and craft products, had the lowest value at .502. After considering all the relevant variables, the researcher labeled the fifth component as "the component relating to economic aspects".

The sixth component comprises 5 variables with component values between 0.568-0.546, 4.46% of Eigenvalues, and 2.97% of Variance, showing that the 5 variables describe the components most effectively and explain the percentage of variance at 2.97. Compared to the Eigenvalues of the other components, this component was determined to have the sixth highest priority. When analyzing each variable, it was found that variable no. 80, strict limitation of the number of the tourist matching with the capacities of the sites, achieved the

highest value at 0.568. While variable no.136, support of traditional costume-wearing to create sense of awareness of local identity, had the lowest value at .546. After considering all the relevant variables, the researcher labeled the sixth component as "the component relating to social and cultural aspects".

Integration of the indicators with public policies

The government agencies include the Local Administrative Organizations (LAOs) or other responsible agencies for tourism at local, regional, and national levels, such as the TAT, Provincial Administrative Organization (PAO), Sub-district Administrative Organization (SAO), and others. The researcher suggests that the responsible agencies should consider the following: (1) they should provide policies and strategic plans to the supervisors (2) impose the implementation plans to accomplish the policies and plans (3) advise, suggest, and participate in solving the problems in sustainable tourism in the implementation process, and (4) follow up and evaluate the management.

The government agencies should manage the tourism through integration and collaboration, and consider the benefits of developments in sustainable tourism indicators such as entrepreneur and community, public policy and public management, natural resource and environment, tourists, economics, society and culture. First, in terms of entrepreneur and community, the entrepreneurs and community members that are responsible for tourism management should develop human resource competencies. To be precise, they should improve the abilities of the local people to understand their geographic advantages, the impacts from tourism, equilibrium of the ecosystem, methods of natural resource and environmental conservation, and tradition and folklore conservation. They provide a mechanism to drive sustainable tourism development further. Finally, human resource development creates reinforcement of the communities in the long run.

Second, the local human resource development can be made especially effective by starting with the development of local children, who will grow up to be responsible for their own local development. This development can include language training, local wisdom and knowledge transfer from elders, local tradition training, and so on. The main objectives of these activities are to disseminate knowledge in natural resource and environment conservation, tradition and folklore conservation, to embed the love and unity in the communities, to create learning partnerships within communities, and to develop a better understanding regarding tourism management suitable to the communities' contexts.

Third, in terms of public policy and public management, fair and equal distribution of income should be well managed by the government. The local people should be the main operators in tourism and take a control of the management in their own areas so that the income from the tourism belongs to the people in the local communities. Nevertheless, the management of local tourism should not diminish the beautiful culture or natural resource conservation. Symbiotic development between economic development and social development should be encouraged, including environmental conservation and ecosystem protection. It is necessary to prepare the communities with the awareness of natural resource conservation and traditional folklore protection to enhance the importance of sustainable tourism.

Fourth, in terms of natural resources and environment, the government should encourage the people in communities to realize the importance of the environmental conservation and protection. People should know the impacts of tourism on the natural resources and environment so that they voluntarily collaborate with the government in development and tourism management to avoid the negative impacts on the environment.

Fifth, in terms of tourists, the government should encourage collaboration and create public consciousness among tourists who visit the area. There should be meetings with both government agencies and communities in planning tourism development and dissemination of knowledge and understanding to tourists, helping to make them aware of the importance of preserving natural resources. At the same time, there should be a strategy to maintain a level of tourist satisfaction with support from government agencies to promote sustainable tourism by giving fair and valuable service to tourists.

Sixth, in terms of economics, the government should set goals that support the local residents' professions and generates income from the use of common assets or public assets. Later, they should encourage the fair and equal distribution of income. The most important thing that the government should be aware of is making sure that local people all agree with the use of local resources, nature, tradition, arts, and historical sites, to develop them into the tourist attractions. The government should consult with the local people, ask for their opinions and brainstorm solutions that meet the needs of each community. The government should listen to the local needs because the tourism is not the primary profession of local residents; rather, it just is another channel for bringing profits to the communities.

Finally, in terms of society and culture, when the development of tourist destinations takes place in any area, the way of life and culture of people is changed. The government should have a policy encouraging the members of the communities to conserve, and not to deteriorate,

their properties, by means of sustainable tourism ideas. In other words, the idea is to arrange tourist activities that are appropriate to the social and cultural conditions of the area. Additionally, cultural roots should be maintained, so that they provide the capital for sustainable tourism.

The analysis of the indicators has led to the development of the sustainable tourism indicators and corresponds to the study of Jatuporn Chujun (2010, p. 204-220) on "Strategic Development for Sustainable Tourism Management" that used a participatory action research process in Ban Tai Koh Phangan District Surat Thani Province. The research found that The Baan Tai community tourism context attracted a large number of foreigners. The selling points are the beauty of the beach, nature and tranquility for relaxation. In addition, the positive impression created for tourists resulted from the various forms of service, including cultural traditions and participation of people in the community and other agencies involved in maintaining identity.

Furthermore, Suchon Intasem (2011, p. 1-8) studied The Strategies of Sustainable Tourism Development in Phachupkhirikhan Province: The Case Study of Paknampran Sub-district. The findings of this research were as follows: 1. Paknampran Sub-district has natural resources and rich biodiversity; activities promoting tourism include trekking along natural trails and planting mangrove forests; tourist resources are easily accessible, and it is located on routes linking to nearby tourist attractions. 2. Most tourists expressed satisfaction with trips to Paknampran Sub-district at a middle level; however, there are some problems such as waste disposal, wastewater treatment, the inadequacy of parking area, public toilets, and lack of clear signage. 3. The strategies for tourism development consist of developing eco-tourism, increasing the value of community products, and raising awareness of natural resource preservation for sustainable tourism development. In order to pursue these strategies, four plans have been devised, namely (i) developing tourist attractions and promoting eco-tourism activities, (ii) promoting and increasing the value of community products, iii) managing integrative tourism, and (iv inviting all sectors to be involved in sustainable tourism.

Public policy on sustainable tourism in Thailand

The goal of Thailand's tourism development in the future should not focus solely on the number of tourists, but on the quality development of tourism in order to become a better tourist

destination. Other areas of focus should be the development of local communities, the better distribution of tourists and income to local communities, and the awareness of the impact of tourism on communities, societies, cultures and the environment. To achieve these objectives, the concept of measuring the success of development should be revised. In the past, tourism development has focused on success in term of numbers, including the number of tourists and revenue from tourism. To measure the development of tourism and succeed in achieving sustainable development in the future, it is necessary to take into account the many dimensions of key performance indicators to balance the economic, social, political, and environmental development.

It is important to continually drive Thailand's tourism strategy by changing the way people think about tourism development. It is important to be united, to cooperate, to brainstorm, to have joint responsibility from all sectors, and to bring together stakeholders that play a key role in the development of the country's tourism. Despite changes in management or people at the policy or operational levels, support from the three actors – **the** public sector, the private sector, and local community residents - is still essential to drive Thai tourism strategy to succeed.   Most critical is the participation of the private sector and local residents, as the owners of the natural resources will be those most affected.

Only when all sectors are involved in the planning of tourism strategies and pushing the plan forward together systematically and in the same direction based on the mutual trust will the tourism development of the country achieve concrete and sustainable success.   One important issue is that the Thai bureaucratic system is hierarchical and does not give opportunities to people to express their opinions in tourism management in their own communities. The fact that they cannot participate in the decision making leads to objections from the local people to governmental touristic projects in their communities. For too long, the tourism management has been so income-oriented that the government focused on the return of investment and the highest profits without appropriate sustainability strategies, leading to the degradation of tourism sites and the need for new environmental protection measures.

A nature study in each area can help determine the area carrying capacities and capacities for further development. For example, some communities have advantages in natural tourist attractions while some others are outstanding in history and culture. The study of these advantages will contribute to the development of community-based tourism management. Moreover, it will help the local people maximize the value of their available touristic resources,

learn how to manage the sustainable tourism, and enhance knowledge management and transfer of knowledge and local wisdom**.**

In the management of these resources, it is necessary to exchange experiences to identify advantages and disadvantages, impacts from tourism, and the competencies of communities**. I**t is essential to identify the most suitable options for the tourism management in each community based on the community**'**s needs and the carrying capacities**.** It can be concluded that a sustainable tourism model reflects the way people directly participate in tourism management, applying natural and environmental, traditional and historical resources to promote tourism under the concept of sustainable tourism concept. Furthermore, touristic business development must be combined with social development and environmental protection by being aware of carrying capacities**.** In addition to the focus on human resource development, the model of management helps decentralize the power in resource allocation, directly and indirectly using resources in the most appropriate way in both the short term and long term**.**

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