

The assessment of sustainable tourism: Application to Kien Giang destination in Vietnam

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ARTICLE INFO	ABSTRACT
DOI:10.46223/HCMCOUJS.econ.en.14.1.2866.2024 Received: July 24th, 2023 Revised: August 29th, 2023 Accepted: September 07th, 2023 JEL classification code: Z30; Z32; Z38 Keywords: economic sustainability; indicator; institutional sustainability; infrastructure sustainability; sustainable tourism; technological sustainability	The concept of sustainability has been widely accepted in tourism to minimize the adverse effects of tourism. This study aims to develop a comprehensive set of indicators to help assess progress toward sustainable tourism for development in Kien Giang, Vietnam. Research to build and validate a set of indicators to measure sustainable tourism development, including economic, environmental, socio-cultural, infrastructure, technological, and political aspects. The indicator is helpful in providing a quantitative assessment of the tourist destination, identifying key intervention priorities, and identifying areas that need to be restructured. The indicator is applied to Kien Giang destinations in Vietnam, and the results are used as a guide for tourism planning. The conclusions of this study can be extrapolated to the study of other tourist destinations.

1. Introduction

The evaluation of a country's or region's performance in terms of tourism sustainability has grown in importance as part of strategic planning in light of the global expansion and development of the tourism industry. This is done to ensure that the present and future opportunities of tourism-based regions are balanced appropriately. Since it uses "free" natural and cultural resources to draw tourists and promote broad growth, tourism is a branch of industry that is present in the majority of the world's economies (Cohen, 1988; Munt, 1994). However, these advantages are frequently accompanied by negative effects, particularly influencing the social and environmental contexts in which the visitation happens due to the dependence on tourism in natural and cultural surroundings. While industry sectors should be promoted for their economic advantages, social and environmental issues must also be taken into account. The phrase "sustainable tourism for development" has become popular in recent years, but due to its quick spread, neither a precise definition nor a set of guiding principles have been developed. As a result, it has been challenging to reach a consensus on the terminology and goals of the idea operation in practice (Butler, 1999; Croall, 1995; Sharpley & Pearce, 2007). Moreover, it is more difficult for the indicators measuring 'sustainable tourism for development' to remain original, especially focusing on one destination.

In the first step of this study, an indicator system that focuses on well-established locations in a nation with a significant tourism industry, like Vietnam, is identified and evaluated. Especially, this study chose Kien Giang Province as a destination. Kien Giang Province is one of the famous tourist destinations domestically and internationally, and its coastal and island

biosphere reserve has been recognized by UNESCO as a world biosphere reserve. The biosphere reserve contains a rich, diverse, unique landscape and ecosystem, such as melaleuca forests on wetlands, forests on rocky mountains, and marine ecosystems in which the typical seagrass beds are associated with animals such as rare Dugongs. Moreover, the landscape of Hang Pagoda (Kien Luong District) is famous for Island Phu Tu. It is also known as Thach Dong, which is less than 3km from the Cambodian border as the crow flies. It is also known for Thach Dong, which is less than 3km from the Cambodian border as the crow flies, and it looks like the hat of an old British cavalryman from afar. Formed from eroded limestone, the inside of Thach Dong is wide enough for tourists to visit the pagoda and see the border. Phu Quoc Island, the largest island in Vietnam, is a pearl island that is currently being noticed by those who like its wild look. According to the Department of Tourism of Kien Giang Province, in 2022, the total number of tourists to Kien Giang was estimated at nearly 7.6 million, up 142% over the same period in 2021; in which, international visitors were estimated at more than 223,000, exceeding 11.6% of the year plan. Total revenue from tourism is estimated at 10,585 billion VND (Quoc Trinh, 2022).

2. Literature review

Similar to sustainable development, sustainable tourism for development also has many different definitions, according to experts (Bramwell & Lane, 2012; Nunkoo & Seetanah, 2019). In accordance with Brundtland Commission Report, the World Tourism Organization (WTO) defines sustainable tourism as “meets the needs of tourists and host regions, while at the same time, it protects and improves opportunities for the future. It focuses on the management of all the resources in such a way that all economic, social, and aesthetic needs are met while cultural integrity, key ecological processes, biodiversity, and life support systems are respected” (McIntyre, 1993, p. 2).

A broader definition of sustainable tourism can be used to address the issue: sustainable tourism development management principles and practices are relevant to all types of travel and destinations. Sustainable development’s core tenet is “Sufficient for the present generation without compromising the ability of future generations to meet their own needs” (Marien, 1992, p. 731). This is the core principle of both concepts. This term’s three fundamental tenets are as follows: is founded first and foremost on human needs (Moldan, Janoušková, & Hák, 2012). The Millennium Ecosystem Assessment emphasizes critical facets of human health and supports the fundamental needs for well-being, freedom, prosperity, and interpersonal relationships. According to Moldan et al. (2012), the second sustainable development concept emphasizes a productive and healthy human existence. The phrase “harmony with nature” highlights the connection and interdependence of human life and the environment. In order to be sustainable and acceptable to both current and future generations, the last principle of sustainable development emphasizes dynamism and permanence (Moldan et al., 2012).

Since the early 1990s, various academic institutions, international organizations, governments, and private businesses have developed research projects to identify indicator systems for assessing sustainable tourism in different destinations. The initial construction on tourism sustainability and the expansion of indicators was by the International Federation of Tour Operators within the framework of the project Sustainable tourism models of the European Community in 1994. Subsequently, the indicators of the tourism guide provided by the World Tourism Organization in 1995, as well as the updated version in 2005, are being considered as a very useful guidebook for researchers and stakeholders. The indicators created by the British Tourism Council in 2002, the French Environment Institute’s national indicators, the German

Federal Environment Agency's indicators from 2001, and others are also featured in tourism literature. The aforementioned indicators and other nation-specific metrics created by various experts serve as a roadmap for tracking and evaluating sustainability in the travel and tourism sector. According to the World Tourism Organization (WTO), sustainable tourism indicators are "the set of measures that provide the necessary information to better understand the links and impact of tourism on the cultural and natural setting in which this occurs and on which it is strongly dependent." (World Tourism Organization, 2004, p. 8). Due to the dynamism and unpredictability of tourism, some people believe this to be an unreachable and unmeasurable aim; as a result, acceptable evaluation methods are crucial for excellent value and dependability to establish and strengthen confidence in decision-making outcomes (Asmelash & Kumar, 2019). The majority of earlier research has concentrated on the traditional elements of sustainable tourism, which include economic, sociocultural, and environmental considerations (Dubois, 2005; Khan, Bibi, Lorenzo, Lyu, & Babar, 2020; Schianetz & Kavanagh, 2008) or an additional indicator of institutional sustainability. Technical and conceptual challenges have made it difficult to apply the literature on tourism and sustainability, despite the fact that it has been the subject of extensive research at the managerial and academic levels (Schianetz & Kavanagh, 2008; Torres-Delgado & Saarinen, 2017). As there is no agreement among academics, it is also impossible to employ a single set of markers for every location. Because of this, a comprehensive examination is necessary for increased validity and dependability to certainty, and most previous research have skipped over this assessment (Reihanian, Hin, Kahrom, & Mahmood, 2015). And last, according to Lozano-Oyola, Blancas, González, and Caballero (2012): "A large number of studies use indicators to determine the level of sustainable tourism at target destinations. However, these studies remain primarily theoretical, due to the incomplete quantification of indicators" (Butler, 1999; McCool, Moisey, & Nickerson, 2001). They place emphasis on the necessity of measuring sustainability in order to implement the idea and facilitate its evaluation. They believe it is crucial to provide a set of measures that will enable people to assess if the tourism in issue is sustainable in order to realize this goal. But these signs should not be chosen at random, and they ought to be clear-cut and uncomplicated.

This study solves some of the above problems through the use of a literature review approach to choose the appropriate composite indicators to assess the sustainability of a tourist destination in the most comprehensive way including sustainability aspects: economic, sociocultural, environmental, infrastructure, technological, and political institutions.

The necessary factors to develop sustainable tourism:

Economic sustainability

Sustainable tourism will contribute to economic development, which is also a driving force behind tourism promotion. According to Seifi and Ghobadi (2017), the growth of tourism is a crucial component of socioeconomic development for all communities and a vital source of employment and income for the next generation. Sustainable tourism will help the economy of the country, produce a steady revenue, and be fair to the local population, among other things. Additionally, it benefits residents, employers, and proprietors. Many nations, territories, and people rely on the tourist sector to maintain their economies. Additionally, the success of tourism-related activities is linked to the establishment of numerous jobs, which should promote prosperity and socioeconomic advancement (Seifi & Ghobadi, 2017). As tourism grows, it will bring in more tourists and support the development of businesses like hotels, restaurants, and airlines in that

nation. The quality of travel services will be increased by reinvestment of the gross national income from developed tourism. The development of tourism will be aided by these relationships. The economy and the growth of sustainable tourism will work together.

Table 1

Indicators based on Theory for Economic Sustainability

No	Indicators	Sources
EcS1	Local economic development	(Johnston & Tyrrell, 2005; Jun, 2018; Khan et al., 2020; Kline, 2013; Kumar, 2014; Long, Blok, & Coninx, 2016; Lozano-Oyola et al., 2012; Nunnally & Bernstein, 1994)
Ec1	Tourism development increases the quality of life for local people	
Ec2	Local people's incomes improved by tourism	
Ec3	Tourism attracts local investment and spending	
Ec4	Tourism is a strong economic contributor to the local community	
Ec5	This site has the ability to compete with surrounding localities in tourism development	
EcS2	Economic viability	
Ec6	This site has many local businesses related to tourism	
Ec7	This site has a large number of tourists during peak periods	
Ec8	Availability of markets for local products	
Ec9	Tourism resulted in local economic diversification	
Ec10	This site is a big market for local products	
EcS3	Employment quality	
Ec11	The number of jobs available to locals in the tourism industry	
Ec12	Tourism created job opportunities for local people	
Ec13	Level of equity among men and women in the tourism job	
Ec14	Tourist destinations have many quality tourism jobs (stable, high paid, permanent, and full-time)	
Ec15	Employment of disabled people in tourism industry job	

Environmental sustainability

The environment focuses on the key elements that contribute to a destination's environmental sustainability, emphasizing the value of making investments in environmental protection and determining how tourism affects the environment. The sustainability of natural regions is aided by the quality of the air, water, and biodiversity, which also enhances tourism and benefits the area's reputation. Sustainable tourist development, according to Seifi and Ghobadi (2017), attempts to preserve the natural environment without causing noise, air, or water pollution. Additionally, it ensures that human, animal, and plant ecosystems are harmonious. Therefore, natural heritage is viewed as a precious resource that helps each nation and place develop its own tourist attractions. For many nations throughout the world, including Vietnam, encouraging it to support sustainable tourist development and protect and promote heritage values for future

generations is not an easy challenge. The preservation of environmental resources, national history, and tourist sites is essential for promoting sustainable tourism. In other words, pollutants involve the release of substances into the environment that affect or can affect the natural composition of the environment, whereas the environment is considered a set of natural and artificial resources that have a complex interrelationship that creates the environment or space and the conditions for life (Mrkša & Gajić, 2014). Therefore, when expanding tourism, it is necessary to establish suitable policies to protect local cultural values and environmental resources in order to save it for future generations. The ideas presented above suggest a link between environmental sustainability and the growth of sustainable tourism.

Table 2

Indicators base on Theory for Environmental Sustainability

No	Indicators	Sources
EnS1	Preserve local environment	(Johnston & Tyrrell, 2005; Jun, 2018; Khan et al., 2020; Kline, 2013; Kumar, 2014; Long et al., 2016; Lozano-Oyola et al., 2012; Nunnally & Bernstein, 1994)
En1	Tourism development actively promotes environmental consciousness among all stakeholders involved in tourism	
En2	Tourism stimulates local crafts and culture	
En3	The local natural beauty is well protected	
En4	Tourism stimulates the conservation of natural resources and local heritage	
EnS2	Environmental purity	
En5	The use of land for tourism development activities does not affect local agricultural development	
En6	This site consumes insignificant renewable energy (solar energy, hydroelectricity, etc.)	
En7	The tourist destination and tourists consume negligible amounts of water	
En8	This site consumes insignificant non-renewable energy (coal, oil, natural gas)	
En9	The depletion of water and energy resources is not caused by local tourism	
EnS3	Safe environment necessary for tourism	
En10	The Local standards of cleanliness at tourist attractions	
En11	The local has quality domestic water sources	
En12	Local food hygiene and safety for food and drinking water	
EnS4	Impact of tourism on the environment	
En13	The amount of solid waste from tourism is negligible.	
En14	Tourists do not cause significant environmental pollution (water, land, and air)	
En15	Tourism does not cause damage to the local environment	
En16	The number of visitors does not lead to significant ecosystem, flora and fauna disturbance	

Socio-cultural sustainability

Whereas tourism develops sustainably, social factors will bring advantages such as creating tourism market demand, cultural exchange, and improving relations between countries. Environmental circumstances (both human-made and natural-born components) and environmental sensitivity should be taken into consideration while planning tourism development (Seifi & Ghobadi, 2017). Accordingly, exploiting tourism, both social and natural aspects, must be cautious, and need to have the right policy so that the implementation is effective without compromising social standards. Furthermore, the creativity and local wisdom in that country will be reflected in the construction of culture and tourism community projects. Sustainable tourism development ensures the reduction of social evils, creates jobs for the community, and supports proper exploitation, nature conservation, and resources for the heirs. In the process of globalization, countries must conserve the unique features of tourism, awareness to have experience in tourism development and absorb the cultural achievements and quintessence of other countries in the world. In addition to encouraging local communities to organize festivals for the purpose of developing tourism, restoring traditional crafts, and having craft villages create souvenirs out of materials found only in those communities, it is essential to preserve and develop each community's distinctiveness in terms of artifacts, landscape, way of life, and festivals.

Table 3

Indicators base on Theory for Socio-cultural Sustainability

No	Indicators	Sources
SCS1	Strengthening local cultural values	(Johnston & Tyrrell, 2005; Jun, 2018; Khan et al., 2020; Kline, 2013; Kumar, 2014; Long et al., 2016; Lozano-Oyola et al., 2012; Nunnally & Bernstein, 1994)
SC1	Visitors respect the values and culture of local people	
SC2	The quality of life of locals has increased thanks to tourism	
SC3	Locals don't feel uncomfortable because of the number of visitors	
SC4	Proud of the local cultural community	
SC5	Tour operators inform visitors about local laws and regulations	
SC6	Visitors are encouraged to learn about local culture through local recreational activities	
SCS2	Cultural richness	
SC7	Community recreation resources are not abused by visitors	
SC8	The quality of life of locals is not diminished by tourism	
SC9	Tourism has not negatively affected local cultural norms and values	
SC10	Local traditions have always been maintained	
SCS3	Preserving local culture & tradition	
SC11	Traditional events during the festival are maintained due to tourism	
SC12	Locals are highly rated for safety in destinations	
SC13	Tourism contributes to attracting young local human resources	

No	Indicators	Sources
SC14	Tourism contributes to the conservation of traditional culture	
SCS4	Local control	
SC15	Local government support to residents on how to introduce their culture to visitors	
SC16	Knowledgeable locals about local heritage and culture	
SC17	Availability of “do’s” and “don’ts” guides at local tourist attractions	

Institutional sustainability

Relating to local, governmental, national, and global sustainable development policies. Studies at different levels have been validated, including local, national, and continental (Barata-Salgueiro & Guimarães, 2020; Siakwah, Musavengane, & Leonard, 2020). Institutional sustainability is targeted to ensure the longevity of heritage sites and national parks, as well as policies, regulations, and certifications that facilitate local sustainable development. Fang, Nguyen, and Armstrong (2022) used a case study approach to understand collective leadership in organizations. A study by Costa, Rodrigues, and Gomes (2019) considered the importance of certifications to sustainability and tourism, recognizing that environmental certification has proven to be an important policy instrument, helping consumers choose products and services that are less harmful to the environment. Besides, research has examined the ethical behavior of organizations in their interactions with public officials and through the power of accountability regulations, influence sustainability reporting practices in tourism (Costa et al., 2019).

Table 4

Indicators based on Theory for Institutional Sustainability

No	Indicators	Sources
InS1	Local-oriented control policy	(Asmelash & Kumar, 2019; Barata-Salgueiro & Guimarães, 2020; Costa et al., 2019; Fang et al., 2022; Siakwah et al., 2020)
In1	There are laws/new laws or amendments introduced to preserve structures at the local level	
In2	The local has a designated budget/expenditure for local tourism research and development	
In3	Tourist attractions comply with safety and security standards (e.g. fire prevention, food safety, and other health requirements, environmental standards)	
In4	The local shall adopt preferential policies for local enterprises doing tourism business	
In5	Local tourist establishments/destinations with national and international certifications	
In6	The existence of safety and security standards for attractions and facilities	

InS2	Local planning policy	
In7	Local leaders towards sustainable tourism development	
In8	There is support from local leadership for tourism development projects	
In9	The Local implementing land planning always preserves local cultural heritage	
In10	The local with designated budgets for local business development support	
In11	Local leadership support for the conservation of local heritage sites	
In12	The local has a clear sustainable tourism master plan	
In13	The local maintains funds for the maintenance and restoration of local tourist attractions	
InS3	Local security	
In14	The local has a stable political system	
In15	The local no-violence/protests	
In16	The local has a system to control local tourism development practices	
InS4	The role of local people	
In17	The participation of local people in sharing the benefits of tourism	
In18	Local people are involved in planning local tourism development	

Infrastructure sustainability

The provision of infrastructure serves as the backbone of the entire nation, society, and destination; they are regarded as networks that support the delivery of public services. Additionally, required for the sustainability of tourism are adequate infrastructure, large roads, and accessible transportation. Additionally, highlighting the need to take infrastructure into account in terms of sustainability, Johnston and Tyrrell (2005) offered a dynamic model of sustainable tourism by outlining the function of infrastructure. Numerous studies have also highlighted the importance of infrastructure for the sustainability of the tourism industry. For instance, Casagrandi and Rinaldi (2002) presented a theoretical framework by examining the significance of infrastructure. The need for infrastructure is also acknowledged by Gössling, Hansson, Hörstmeier, and Saggel (2002), which will increase tourist satisfaction and encourage them to visit the location again. In line with this trend, Panasiuk (2007) pointed out the overlooked importance of tourism infrastructure as a crucial element of the local tourism industry. Infrastructure such as hotel, dining, and transit options make it easier for people to see and use tourist attractions (Panasiuk, 2007). The authors frequently fail to openly describe and take into account the sustainability of tourism infrastructure, leaving only an implied description of this experience.

Table 5

Variable base on Theory for Infrastructure Sustainability

No	Indicators	Sources
InfS1	Essential infrastructure	(Casagrandi & Rinaldi, 2002; Gössling et al., 2002; Javed, Tučková, & Jibril, 2020a, 2020b; Johnston & Tyrrell, 2005; Panasiuk, 2007)
Inf1	The destination participates in water-saving programs, applies water conservation policies and techniques, and recycles treated wastewater	
Inf2	Tourist information is available and provided fully and up-to-date in the mass media	
Inf3	An appropriate number of toilets (or portable toilets) around the tourist site	
Inf4	Appropriate signage on all roads, stimulates an appreciation of the natural and cultural environment, provides interesting and relevant information	
Inf5	The tourist spot ensures the drainage system to avoid flooding	
Inf6	Roads, markers and signposts are sufficient and clear	
InfS2	Infrastructure planning	
Inf7	Tourist spot with uninterruptible power supply	
Inf8	Improved public service is due to tourism	
Inf9	The number of hospitals around the tourist destination is appropriate	
Inf10	Road design that respects the natural terrain to minimize local natural ecosystem impacts	
InfS3	Transport facility	
Inf11	The locality benefits from tourism development and activities due to improved infrastructure	
Inf12	Local transport availability is sufficient and provides quality services with good frequency	
Inf13	The improvement in highways and transport infrastructure is due to tourism	
Inf14	Taxi are available to move around the location/city at affordable prices	
InfS4	Hotels and restaurants services	
Inf15	Sufficient local restaurants offer high standard food at reasonable prices	
Inf16	Local restaurants all offer quality traditional food	
Inf17	The hotels available are fully equipped with well-managed facilities	

Technological sustainability

The technology component of sustainability is also important and frequently disregarded, making it a key component of sustainability. The contemporary era of technology has enlarged the role of technology in tourism, making technological sustainability essential for the industry. In order to attain sustainability, innovations and the utilization of technology are crucial (Rantala, Ukko, Saunila, & Havukainen, 2018). Because of this, its effects on society, human well-being, economic growth, and sustainability are important (Anadon et al., 2016). In addition to reducing the negative effects of climate change, technological adoption and use also helps (Long et al., 2016; Scherr, Shames, & Friedman, 2012). For sustainability to exist, natural resources must be used responsibly. Thus, the goal of employing modern technology is to limit environmental harm and reduce energy consumption (Wasiak, 2004). In order to give trustworthy information both before and during travel, information and communication technology is also at the forefront of the tourism industry (Barile, Ciasullo, Troisi, & Sarno, 2017; Kumar, 2014). It is undeniable that the competitiveness and long-term viability of the tourism industry depend on technological sustainability. There hasn't been any study conducted on this aspect of technology sustainability thus far.

Table 6

Variable base on Theory for Technological Sustainability

No	Indicators	Sources
TeS1	Technology in design, management and protection	(Anadon et al., 2016; Jun, 2018; Kumar, 2014; Long et al., 2016; Rantala et al., 2018; Scherr et al., 2012; Shrivastava, Ivanaj, & Ivanaj, 2016; Wasiak, 2004)
Te1	There is the use of technology for protection, such as walk-through gates, metal detectors, weapons, and bomb detection at the tourist site	
Te2	There is the use of technology for protection, like observation through closed-circuit television cameras, addressable smoke detectors, and life-safety systems	
Te3	The site has enough facilities like the availability of cellular services with good signal strength and connectivity	
Te4	There is the use of technology in the design and development aspects of local destination facilities	
Te5	This site has free facility of Wi-Fi	
TeS2	Local social media	
Te6	The site promotes its products through its website quite effectively	
Te7	The local implements digitization of tourist attractions to introduce visitors	
Te8	The local with an active Website to provide quick information and engage in conversation with travelers	
Te9	The locals use online groups (fanpage/zalo page, etc.) to have open discussions with tourists and locals	

No	Indicators	Sources
TeS3	Modern technology for tourism	
Te10	The online facility to buy tickets, and use of credit cards/debit cards for spot buying is available at the tourist site	
Te11	This site has a highly innovative smartphone payment system	
Te12	The use of technology is good for a more careful management of tourist numbers to reduce overcrowding at the tourist site	
Te13	Tourist destinations that adopt environmentally friendly technologies and techniques (water, energy-saving equipment, waste recycling, green purchasing, on-site sourcing)	

3. Methodology

3.1. Sample and data collection

The research location is conducted in Kien Giang Province, and the sample is determined by the purposeful random sampling method. The author chose this province for the following reasons: for starters, Kien Giang is a popular tourist site in Vietnam. Second, this destination has international airports, which yearly welcome a significant number of international visitors. Third, this site is well-known local cultural heritage treasures, including UNESCO World Cultural Heritage treasures. For the survey, which was conducted in late 2022 and early 2023, 230 distributed questionnaires and in-person interviews were used to assure the accuracy of the information gathered and boost response rates. We achieve a response rate of about 90% out of 230 surveys. AMOS and SPSS are used for all statistical calculations. The requirements for selecting respondents are based on the following criteria: a) At least 18 years old at the time of the survey; b) Have lived around the tourist destination for at least 05 years when surveying; or a visitor who has been to Kien Giang within the past 1 year; and c) Willingness to provide full information including personal information. The questionnaire is given in the form of a closed-ended questionnaire, in which respondents are expected to choose from many options for each question being asked. All variables will be measured using Likert scale to make an analysis related to a person's attitude or opinion about sustainable tourism aspects and overall assessment of sustainable tourism in Kien Giang Province, Vietnam.

3.2. Reliability and validity analysis

Utilizing multivariate statistical techniques, the goal of sustainability assessment is to construct 6-dimensional sustainability indicators. When variables are highly linked, PCA is a quantitative technique for variable reduction (Pearson, 1901). The reliability of a study or questionnaire is defined in statistics and psychometrics as the general consistency of a measuring test (Trochim & Donnelly, 2001) and a research tool that consistently measures structure (Field, 2009). The evaluation of the measurement model's internal reliability, also known as Composite Reliability (CR), which refers to the internal consistency and reliability of a latent structure and is extracted as the mean percent variation explained by the measures for a latent structure, must be satisfied. Hair, Black, Babin, Anderson, and Tatham (1998); Kline (2013) state that internal consistency requires a Cronbach's Alpha level of 0.7 or higher. Additionally, to attain the structure's reliability, Holmes-Smith (2001) states that appropriate aggregate reliability (CR) must be 0.5 or above. Similar to the Average Variance Extracted (AVE), the desired AVE level should be 0.5 or higher. The AVE refers to the mean percentage of variation explained by the measures for a latent variable.

3.3. Normal distribution

Normal distribution testing is very important in statistical techniques when using maximum likelihood estimation (Hair et al., 1998). Skewness and Kurtosis are statistical methods used to evaluate the normal distribution of data sets.

Various cut-off values are used to test for Skewness, and the most common values were within ± 2 (Hair et al., 1998). Kurtosis describes the distribution of observations around the means. Usually, a value between (-2) and (2) will also be accepted (Field, 2009).

4. Result

4.1. Demographic characteristics of respondents

The survey is administered to 230 respondents and there are a total of 206 usable questionnaires, accounting for 89.57% of the general response rate. Table 7 presents a summary of the description of the sample. 51% of respondents are tourists and 49% are locals who have lived in Kien Giang for at least 5 years. 48.1% of interviewees are male while the remaining 51.9% are female. The age group is spread between 18 and 60 years old. Among the 206 respondents, 63.2% have an average monthly income of less than 10 million VND. In terms of education level, more than half of the respondents (57.3%) have graduated from High school, while 40.3% are graduate students and 2.4% have a Master's degree.

Table 7

Description of sample

		Frequency	Percentage (%)
Objects	Local people	101	49.0
	Tourist	105	51.0
Gender	Male	99	48.1
Age	Female	107	51.9
	18 - 24 years old	41	19.9
	25 - 30 years old	47	22.8
	31 - 40 years old	67	32.5
	41 - 60 years old	51	24.8
Income	Less than 05 million VND	24	11.7
	05 - 10 million VND	106	51.5
	10 - 15 million VND	38	18.4
	15 - 20 million VND	27	13.1
	20 - 30 million VND	11	5.3
Academic level	Highschool	118	57.3
	Bachelor's degree	83	40.3
	Master's degree	5	2.4
Total		206	100.0

Source: Author's extraction from SPSS

4.2. Verify the development of indicators

To ascertain the dimensions of the indicators, a Principal Component Analysis (PCA) was carried out on 96 indicators chosen with regard to institutional sustainability, technological sustainability, infrastructure sustainability, socio-cultural sustainability, and environmental sustainability. With only 21% information loss, the Total Variance Explained (TVE) for this data is 79%, which is fairly good for research on behavior and the social sciences. In contrast to Asmelash and Kumar (2019), where the data only partially explain the variation, this total variance is significantly better explained. Aspect and component indices have Cronbach's Alpha values that range from 0.631 to 0.934, exceeding the industry standard of 0.6 (Nunnally & Bernstein, 1994). Additionally, Kaiser-Meyer-Olkin (KMO) is regarded as a reliable indicator of sample completeness. KMO sample adequacy rates can be divided into four categories, including medium (0.5 - 0.7), moderate (0.7 - 0.8), meritorious (0.8 - 0.9), and exceptional (above 0.9), according to Field (2009); Hair et al. (1998). The KMO sample adequacy rate for this study was 0.920, which is outstanding.

Next, researchers frequently utilize Bartlett's Test to evaluate the input correlation matrix. This indicates that the correlation matrix was not a unit matrix, as indicated by a significant Chi-Square value (Field, 2009). The correlation between the indicators is adequate to use PCA, as shown by the Bartlett test if it is significant (Hair et al., 1998). As a result, if the Bartlett test is significant, it shows that there is enough correlation between the indices to apply PCA (Hair et al., 1998). This investigation demonstrates that the factor analysis is pretty adequate (Chi-Square = 3329.491). Additionally, the factor analysis based on the primary components shows the accuracy of the findings and analysis.

Assessment of validity and reliability

Based on the threshold values recommended in the literature, Confirmatory Factor Analysis (CFA) is used to assess the validity of the dimensions, including convergent validity, discriminant validity, and content validity. The crucial point is that, in accordance with the advice of Asmelash and Kumar (2019), those composite variables were constructed based on their sub-dimensions to evaluate reliability and validity. Table 8 displays the AVE, CR, and SRW values. based on the suggested standards (Hair et al., 1998); in this study, all requirements were met.

For testing the normal distribution in this study, some variables have skewness and kurtosis values exceeding (-1) and (1), but all are between (-2) and (2), so it is still acceptable.

Table 8

Construct reliability

	Construct/ Indicators	Standardize dRegression Weight	Cronbach's Alpha	Composite Reliability	Average Variance Explained
	Economic_Sustainability		0.913	0.916	0.785
EcS1	Local economic development	0.87	0.812		
EcS2	Economic Viability	0.924	0.869		
EcS3	Employment Quality	0.863	0.803		

	Construct/ Indicators	Standardize dRegression Weight	Cronbach's Alpha	Composite Reliability	Average Variance Explained
	Environmental_Sustainability		0.802	0.799	0.504
EnS1	Preserve local environment	0.727	0.819		
EnS2	Environmental Purity	0.549	0.761		
EnS3	Safe environment necessary for tourism	0.85	0.710		
EnS4	Impact of tourism on the environment	0.681	0.745		
	Socio_Cultural_Sustainability		0.915	0.916	0.732
SCS1	Strengthening local cultural values	0.896	0.909		
SCS2	Cultural Richness	0.849	0.825		
SCS3	Preserving Local Culture & Tradition	0.887	0.827		
SCS4	Local Control	0.785	0.675		
	Infrastructural_Sustainability		0.934	0.936	0.785
InfS1	Essential infrastructure	0.881	0.853		
InfS2	Infrastructure planning	0.873	0.855		
InfS3	Transport Facility	0.892	0.842		
InfS4	Hotels and Restaurants services	0.897	0.715		
	Technological_Sustainability		0.880	0.883	0.715
TeS1	Technology in Design, Management and Protection	0.774	0.840		
TeS2	Local Social Media	0.88	0.812		
TeS3	Modern technology for tourism	0.879	0.804		
	Institutional_Sustainability		0.878	0.887	0.664
InS1	Local-Oriented Control Policy	0.874	0.869		
InS2	Local Planning Policy	0.841	0.847		
InS3	Local security	0.815	0.789		
InS4	The role of local people	0.722	0.631		

Source: Author's extraction from SPSS

To measure the fit of the measurement model to market information, we use the index to measure the appropriateness of the model (GOF - Goodness-of-fit). The model is considered suitable with market data when (Hair et al., 1998): $CFI, TLI \geq 0.9$, $\chi^2/df \leq 2$, $RMSEA \leq 0.08$. After analyzing the CFA, we obtain the indicators to evaluate the relevance of the measurement model with market data: $2/df$ (CMIN/DF) = $1.426 \leq 2$; + $TLI = 0.961$; $CFI = 0.966 > 0.9$; $RMSEA = 0.046 < 0.08$. Therefore, we can conclude that the model fits the market data.

After the measurement model has been validated by Confirmatory Factor Analysis (CFA), we determine the structural model (SEM - Structural Equations Models) based on the selected research model and validate it.

4.3. Measuring aspects of local tourism development

To assess the suitability of structural modeling with market data, we also use the same metrics as in the CFA analysis:

+ $CFI, TLI, GFI \geq 0.9$

+ $\chi^2/df \leq 2$

+ $RMSEA \leq 0.08$

The results of building the SEM structural model in Table 9.

Table 9

Estimates of the following regression model parameters

			Regression Weights	Standardized Regression Weights	S.E.	C.R.	P
Local Sustainable Tourism	<--	Infrastructural Sustainability	0.148	0.125	0.086	1.73	0.084
Local Sustainable Tourism	<--	Socio_Cultural Sustainability	0.238	0.212	0.077	3.097	0.002
Local Sustainable Tourism	<--	Economic Sustainability	0.365	0.258	0.098	3.733	***
Local Sustainable Tourism	<--	Institutional Sustainability	0.28	0.204	0.115	2.439	0.015
Local Sustainable Tourism	<--	Technological Sustainability	0.034	0.029	0.089	0.375	0.707
Local Sustainable Tourism	<--	Environmental Sustainability	0.303	0.23	0.091	3.336	***

Source: Author's extraction from SPSS and Amos

A proposed index system that incorporates several aspects of tourism development into a single assessment instrument for evaluating tourism destination development is the study's end result. The composite index created for this study theoretically supported the significance of 06 fundamental components. The attraction of destinations is significantly shaped by these factors.

After receiving training and working to determine the necessary intervention priorities in accordance with the classification levels for each component, local tourism managers may understand the findings in a simplified version with ease. This way, Table 9 presents calculated

indicators for each feature of sustainable tourism (economic, socio-cultural, environmental, infrastructure, technological, and institutional) based on data collected from Kien Giang Province of Vietnam. According to the Estimated Sustainability Index for Economical, Kien Giang has the highest economic sustainability (SRW = f0.258), including Local economic development, Economic Viability, and Employment Quality while technological sustainability is not significant in the sustainable tourism development of Kien Giang.

The following sustainability index for the sociocultural dimension includes the indicators Strengthening local cultural values, Cultural Richness, Preserving Local Culture & Tradition, and Local Control. In accordance with the results of the sustainability index estimation, socio-cultural plays a third role after environmental sustainability (including Preserving the local environment, Environmental Purity, Safe environment necessary for tourism, and the Impact of tourism on the environment).

For local tourism to be sustainable and grow, infrastructure and institutions play a critical role. Local-oriented control Policy, Local Planning Policy, Local Security, and the Role of Local People are included in this study's political-institutional sustainability index. Additionally, due to the rapid expansion of the provision of tourism services, improved streets, and safe system transportation, the significance of infrastructure (including indicators related to Essential infrastructure, Infrastructure planning, Transport Facilities, and Hotels and Restaurants services) has greatly increased. This has improved the level of sustainability and competitiveness of local tourism.

5. Conclusion and future development

This study has created a comprehensive index that can be used as a tool to assess the sustainability of destinations at the local and regional levels. It also filled in the gaps in previous studies that caused research problems, by developing a tool to measure 96 indicators covering six aspects. These indicators can serve as a practical operational manual to identify intervention priorities for destination development. The optimization of investment, social, and economic resources enables destinations to develop a long-term competitive advantage in order to strengthen their competitive position in the tourism business. Additionally, it aids in creating wonderful experiences, raising return rates, and meeting shifting consumer demand in travel.

This research focuses on a quantitative methodology. Initially, the set of indicators is obtained from different constructions. Following the approach of previous studies on sustainable tourism. By employing the factor loading for each metric and computing the component score coefficient matrix for each index in each category by using this novel method, the analysis's results provided 96 metrics in 22 dimensions. Furthermore, the proposed indicator has been practically tested in a case study (Kien Giang, Vietnam).

Similar to this, the environment plays a crucial part in supplying any tourism-related good or service. However, tourism, which can help to preserve historic buildings and monuments, is directly linked to environmental deterioration; the production of garbage and long-term environmental restructuring are both seen negatively. A good balance between tourism development and resource use is also shown by issues pertaining to cultural and social consequences and a number of other study-included components. This is necessary for tourism to be sustained over the long run. Therefore, using indicators and measures on occasion is crucial to upholding harmony and moving toward sustainable tourism.

The study made an effort to assess and validate the growth of sustainable tourism indicators. A comprehensive set of indicators will help monitor tourism-related activities and their impacts, researchers can refer to the suggested index to understand the structure of tourist destinations. Furthermore, they can apply it to sub-destination, cross-destination comparisons, or measure over time, with instructions provided for the assessment methods.

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