

Promote Sustainable Coastal Tourism Sector Through Structural Equation Modelling Analysis: Case Study Salam Area Bima Regency, West Nusa Tenggara, Indonesia

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Abstract

Indonesia's coasts have the potential to be developed through a sustainable tourism sector so that it can have a positive impact on the surrounding ecosystem and economy. Developing a sustainable coastal tourism model is one of the goals in the SALAM Area, Bima Regency, West Nusa Tenggara, and also an objective of this research. The data used to develop this development model is based on three sustainability dimensions: environmental, economic, and social. Questionnaires based on this dimension were distributed to 100 respondents as a result of purposive sampling, which was then analyzed using Structural Equation Modeling (SEM) to determine and understand the phenomena that occurred. The model that has been built shows that of the three existing dimensions, only the environmental dimension has a positive and significant influence on the sustainable coastal tourism development model, while the economic and social dimensions have no significant effect.

Keywords: Coastal Tourism, Structural Equation Modelling, Sustainbale Tourism

INTRODUCTION

Sustainable tourism is a concept that develops in line with the concept of Sustainable Development, where tourism does not only focus on providing attractions but also applies the concept of conservation and opens up opportunities for development from all aspects of the future (Parmawati et al., 2022; UNWTO, 2023). In line with this, Parmawati & Hardyansah (2021) stated that one form of sustainable tourism, namely eco tourism, plays a role in harmonizing nature and humans in the process so that positive impacts can be felt by the community and the surrounding environment, which include increasing income, improving natural conditions, and increasing public awareness in managing ecosystems. Conventional tourism is currently being abandoned because it is considered inefficient in resource utilization and contributes significantly to the environment and local communities. Meanwhile, sustainable tourism is starting to be developed as a form of tourism with good prospects in the future (Hakim et al., 2012; Suddin, 2017).

As a maritime country with a long coastline reaching 5,700 km from the tip of Sumatra Island to the tip of Papua Island, Indonesia is included in the list of countries with the fourth longest coastline in the world. However, when viewed in terms of ecosystem diversity and the coast's ecological role, Indonesia is ranked first in the world (Sukardjo & Pratiwi, 2015; Sandhyavitri et al., 2019; Suo et al., 2020). It is what makes tourism activities such as the coast and the sea quite dominant in Indonesia (Rizal et al., 2022). One of the areas with potential for developing coastal tourism in Indonesia is in Bima Regency, West Nusa Tenggara Province, which has a sea area of 3,572.31 km² with a coastline reaching 775.32 km. In line with this potential, Bima Regency has four development priorities following the RPJMD: infrastructure, spatial planning, tourism, and regional connectivity. In this case, it is hoped that all elements in this area's development priorities will positively impact the local community's economy and ecosystem stability (BAPPEDA Kabupaten Bima, 2011).

Regarding tourism development, Bima Regency has a priority area known as the SALAM Area (Sape District and Lambu District). This area was formed under Presidential Regulation Number 32 of 2018 concerning the Labuan Bajo Flores Tourism Area Management Authority Board and the recommendation of the Governor of West Nusa Tenggara Number 600/65/Bappeda/2020 concerning Area Development. The SALAM Area has high diversity in human resources, natural resources, level of development, and development, as well as developing strategic environmental issues. So, in setting policies to accelerate regional development, it is necessary to consider diversity and environmental factors. However, in

reality, tourism objects in Bima Regency, especially in the SALAM area, are still said to be underdeveloped and, in the context of investor interest in investing in the business, are still in the low category. In addition, the number of foreign tourist visits is still relatively minimal and is still dominated by local tourists only at certain times (high season). It takes the involvement of stakeholders in tourism development. However, to reduce the environmental impact of tourism development in the SALAM Area and encourage tourism to become a driving force for the surrounding community's economy, the approach to developing tourism is to initiate the concept of sustainable coastal tourism. It is because the development of sustainable marine tourism can also have positive implications for preserving the coastal environment (Musaddun et al., 2013). Until now, the efforts made by the Government of Bima Regency have not achieved maximum results. Various obstacles that affect these conditions include the mechanism and operational development of tourism objects that have not run optimally and integrated and the absence of instruments in developing sustainable coastal tourism development model that is appropriate for the SALAM Area, which also considers the dimensions of Sustainable Development, namely the environmental, social, and economic dimensions. So, in its development and management, it can encourage the conservation of natural resources and the stability of the community's life and economy, especially in the SALAM Area.

METHOD

Study Area

The SALAM area (Sape District and Lambu District, Bima City) is part of the Komodo National Park. Geographically, Bima Regency has a long coastline reaching 775.32 km, so it has outstanding potential to be developed into sustainable coastal tourism to fulfill the community's needs while preserving the environment. The development of the SALAM area is supported by Presidential Regulation Number 32 of 208 concerning the Management Authority for the Labuan Bajo Flores Tourism Area and the Recommendation Letter of the Governor of West Nusa Tenggara Number 600/65/Bappeda/2020 concerning Area Development. One of the development priorities for the City of Bima in the Regional Medium-Term Development Plan (RPJMD) is infrastructure, spatial planning, tourism, and regional connectivity (RIPPDA Kabupaten Bima, 2017).

In this study, the locations used as samples in the sustainable beach tourism development model are at three points: Pink Beach, Lariti Beach, and Pasir Putih Beach. The distribution of research locations can be seen in Figure 1 below.



Figure 1. Research Location (SALAM Area, Bima, West Nusa Tenggara, Indonesia) Source: Research Design, 2022

Data Source

Sample of Population

The non-physical samples in this study were respondents from the community consisting of two types: samples from the public around the study site and samples from experts in Bima City. *Purposive sampling* is the sampling method used to

determine the two types of respondents. Respondents from the community around the research location were selected based on the following criteria: 1) Indigenous people living in the research location, 2) Involved in the management of beach tourism in the SALAM area, and 3) Positively or negatively affected by the management of beach tourism in the area REGARDS. So that approximately 45 people were obtained for the three research locations, Pink Beach (15 respondents), Lariti Beach (15 respondents), and Pasir Putih Beach (15 respondents). Meanwhile, the criteria for selecting respondents from experts are as follows 1) Having competence in the field of Tourism, 2) Having a role in decision-making, 3) being Willing to give opinions and accept suggestions from research. The result is 55 respondents were obtained from experts consisting of the Tourism Office (15 respondents), Maritime Affairs and Fisheries Service (5 respondents), Environment Service (10 respondents), BAPPEDA (10 respondents), RIPDA Compilation Team (10 respondents), and Academics (5 respondents).

Data Collection

To explore information and phenomena that occur, the researcher compiled a questionnaire consisting of dimensions related to the model of sustainable coastal tourism development in Bima Regency. There are four dimensions with each component of the questions in this research questionnaire, as follows: Environmental variables (6 variables), Economics (6 variables), Socio-Cultural (12 variables), and Tourism Sustainability (7 variables). The variables in this study can be seen in Table 1 below.

Table 1. Research Dimension based on Sustainable Tourism Development					
Dimensions	Variable				
Environment	Controlling the number of visitors is adjusted to the carrying capacity of the coastal tourism object				
	environment.				
	Availability of waste processing around public facilities Beach tourism area.				
	Activities in coastal tourism are still natural ecological environment, and there are efforts to				
	manage the environment.				
	There are efforts to maintain the environmental structure of flora in coastal tourism objects.				
	Waste management.				
Economy	Tourism market potential				
	Number of visiting tourists				
	The average income of the community from the tourist area				
	Absorption of labor in tourist areas				
	Coastal tourism activities contribute to increasing local revenue				
	Domination of tourism use (residents or outside the area)				
	Level of knowledge regarding the preservation of tourist objects				
	Efforts to repair ecosystem damage				
	The role of local government in tourism areas				
	Whether there is a conflict in the utilization of tourist sites				
Social	Efforts to improve the entrepreneurial ability of the community				
	Attitudes and community participation in supporting the development of coastal tourism				
	Crime act				
	Involve the community in planning, developing, and managing tourism areas				
	The role of private institutions in tourism areas				
Sustainable	The suitability of coastal tourism development following spatial plans and other related				
	regulations				
	Compatibility of recreational tourism with developed tourist objects				
	Compatibility of tourism development with spatial planning				
Cousiai Tourism	Waste management facility				
Iourism	Nearest garbage collection location				
	Garbage collector special				
	Availability of promotional media and information				

Source: Research Design, 2022

Analysis

To study the phenomena that occur in the field related to the sustainable coastal tourism development model, researchers use the Structural Equation Modeling (SEM) method. SEM analysis can provide an overview of the phenomena and information about how close the hypotheses are made to the actual conditions in the field (Bagozzi & Yi, 2012; Nunkoo et al., 2013). Several studies on the predictive analysis of tourism needs in several world regions also use SEM (Witt & Witt, 1995; Yoon et al., 2001; Li et al., 2005; Song & Li, 2008; Basak et al., 2021). The SEM approach has the advantage of studying complex phenomena, where in the case of the development of a sustainable beach tourism model in the SALAM Region, which is multidimensional and involves an Environmental Dimension, a Socio-Cultural Dimension, and

an Economic Dimension, the SEM analysis can provide an overview of the relationship between these variables to create an integrative model.

RESULT AND DISCUSSION Demographic of Respondents

Demographic data influences the knowledge and behavior patterns of respondents to the phenomenon that is currently happening, in this case, knowledge related to the development of sustainable coastal tourism models (Mason & Cheyne, 2000; Hao, Long & Klecky, 2011). A total of 100 respondents in this study were selected based on purposive sampling and were then interviewed and distributed questionnaires to respondents who were divided into two groups, namely respondents from experts and respondents from the community around the research location. The demographic data obtained shows that the gender distribution of the respondents is 90% male and 10% female. The age range of these respondents varies from 25 to 65 years old, whereas according to the Ministry of Manpower of the Republic of Indonesia (2021), the age in this group still belongs to the age of productive workers who can work in various leading sectors in their area.

Structural Equation Modelling (SEM) Analysis

The interviews were conducted with 100 respondents in a semi-structured manner based on the questionnaire that had been prepared. In the questionnaire, there are dimensions related to the phenomenon to be studied, including environmental, economic, and socio-cultural dimensions, where the hypothesis in this study:

Ho: There is no positive and significant relationship between the environmental, socio-cultural, and economic dimensions in the sustainable coastal tourism development model

H1: There is a positive and significant relationship between the environmental, socio-cultural, and economic dimensions in the sustainable coastal tourism development model

Outter Model Evaluation

Structural Equation Modeling (SEM) is used to analyze and test hypotheses in research. The results of the SEM analysis consist of the Loading factor, Average Variance Extracted (AVE), and Composite Reliability. The results of the Loading Factor (Figure 2) are the initial stage in testing the model's validity, which is analyzed based on the phenomena that occur.



The results of research from Maydeu-Olivares et al. (2019) state that the developed model's loading factor value must be more than 0.5. Meanwhile, according to Afthanorhan et al. (2020) also stated that a loading factor value that is in the value range of 0.0 - 0.1 means that the results for factor loading are under the assessment of the measurement model, while the variable values that are considered valid or accepted are worth above 0.6. The measurement results of the Loading Factor values shown in the model above have varying values, with each value > 0.5; this indicates that each variable in these dimensions is considered valid for constructing a research model. Average Variance Extracted (AVE) and Composite Reliability were used to evaluate the reflective measurement model (Table 2 below). According to (Tabachnick & Fidell, 1996), Composite Reliability (CR) and Average Variance Extracted (AVE) for each construct can also be used to determine the convergent validity of the model compiled.

Table 2. Composite Reliability and Average Variance							
Dimension	AVE Value	Composite Reliability					
Economy	0.707	0.935					
Environment	0.823	0.958					
Social	0.871	0.984					
Sustainable Coastal Tourism	0.826	0.971					
Source: Analysis, 2023							

Average Variance Extracted (AVE) is a measure of reliability that reflects the amount of variance in an indicator calculated by a construct, and its value must be above 0.5 to be a valid model construction (Fornell & Larcker, 1981). The table above shows that the AVE value has a value above 0.5 (0.7 - 0.87), so it can be said that each variable is a valid variable in building a model. It is also supported by research from Achjari (2004), which states that each construct must have an AVE value greater than 0.5 to be considered valid; if the value is less than that, then the validity of the construction should be questioned. The validity of a model based on existing variables can be seen in the value of Composite Reliability. According to Assaker et al. (2010), Composite Reliability is a value equivalent to the value of Cronbach's Alpha, which also has advantages in measuring the validity of variables based on standard loading and measurement errors for each item better than based on Cronbach's Alpha value. A variable is considered valid if it has an interpretation value above 0.7 (Barclay et al., 1995; Achjari, 2004). From the analysis results (Table 2), the Composite Reliability value of each model meets the requirements, which is above 0.7 (0.7 - 0.87). So it can be said that each of these variables is a valid variable. Al-Mshoum (2021) explains that if the Composite Reliability value produces results greater than 0.5, all the elements in the SEM analysis on the occurring phenomena are very reliable.

Inner Model Evaluation

The coefficient of determination can be seen through the adjusted R-Square and R-Square values (Marliana, 2020). The coefficient of determination R-square (R2) shows how much exogenous variables explain endogenous variables. The R-square value will determine the explanatory power of the model. The value of R squared in this model is 0.167, which means that the Sustainable Coastal Tourism Model can be explained by 16.7% by the Environmental, Economic, and Socio-Cultural dimensions. In comparison, the rest is explained by other variables not explained in the study. The results of R-Square and R-Square Adjusted can be seen in Table 3 below.



Bootstrapping in SEM analysis is used to calculate the estimated significance level of each parameter in the built model. This analysis is a non-parametric resampling procedure that assesses statistical variability by examining the variability of the sample data (Efron and Tibshirani, 1994). The bootstrap method involves repeated random sampling by substituting the original sample to create a bootstrap sample. It is a suitable procedure for estimating the sampling distribution under random variables that are independent and identically distributed (Efron, 1979). More clearly, the value of the relationship between dimensions and also to determine the level of significance as well as test the existing research hypotheses can be seen in Table 4 below.

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Table 4. Path Coefficients									
	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Notes			
ECONOMY -> SUSTAINABLE	-0,138	-0,061	0,147	0,942	0,346	Not Significant			
ENVIRONMENT -> SUSTAINABLE	0,370	0,369	0,095	3,895	0,000	Significant			
COASTAL_TOURISM SOCIAL -> SUSTAINABLE	0.114	0.085	0.107	1.072	0.284	Not			
COASTAL_TOURISM		3,305	0,107	1,572	0,201	Significant			

Source: Analysis, 2023

Based on Table 4 above shows that there are at least three relationships that are created from the model that has been compiled. T-statistics and P values are essential in determining the significance level of each relationship between dimensions. If, based on the T-statistics, the value is more significant than 1.98 (> 1.98), then the relationship is considered insignificant or has no real influence on the sustainable coastal tourism development model. Of the three relationships created, it can be seen that two dimensions are considered to have no significant effect, namely the economic dimension (0.942 < 1.98) and the social dimension (1.072 < 1.98). Meanwhile, the environmental dimension is significantly related to the sustainable coastal tourism development model (3.895 > 1.98). This positive and significant relationship illustrates that the greater the government's and society's attention to the environment or ecosystem, the greater the opportunities for developing a sustainable coastal tourism model. Based on Parmawati & Hardyansah (2020), The sustainability of a preserved area is highly dependent on the surrounding environment. The environment has a real influence on tourism sustainability. Strategy is needed to protect the environment from damage, such as a built collaboration between the private and government sector. The collaboration created is used to unite views regarding the importance of ecological sustainability in tourist areas because most business actors are only oriented toward the economic growth of their businesses (Yustina et al., 2018). One of the tourism problems in Indonesia has to do with waste. Local communities should be able to play a role as participators who actively contribute to waste management because there is more inorganic waste in coastal areas, and it is not easy to control (Megawan and Suryawan, 2019).

CONCLUSION

The SALAM area is a strategic area for tourism development, primarily to encourage the creation of sustainable tourism. So it is necessary to have a development model based on Sustainable Development. Here researchers use three dimensions of sustainability which include environmental, economic, and social, to assist in preparing an optimal model. To support researchers in understanding existing phenomena, the analytical method used is Structural Equation Modeling (SEM) using Smart-PLS software. Of the three dimensions analyzed using SEM, it can be seen that only one dimension significantly affects the development of a sustainable beach tourism model, namely the environmental dimension.

In contrast, the economic and social dimensions do not significantly influence. This significance level is inseparable from the local government's role in accelerating the development of a sustainable coastal tourism model following the RPJMD and regional spatial planning, which also considers ecological balance. However, the success of developing sustainable coastal tourism can be achieved by strengthening in one dimension and requires strengthening in other dimensions because Sustainable Development is a multidisciplinary concept.

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