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DEVELOPMENT OF TURTLE CONSERVATION TOURISM AND ITS EFFECT ON THE INCOME OF THE PEOPLE OF PARIAMAN CITY

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ABSTRAK

This study investigates the impact of sea turtle conservation tourism development on the income of local communities in Desa Apar, Kota Pariaman, focusing on four key determinants: location, infrastructure, promotion, and educational programs. The originality of this research lies in its holistic approach, integrating physical, promotional, and educational dimensions as predictors of community income in conservation-based tourism settings. A quantitative research design was applied using a total sampling technique, comprising 43 respondents engaged in work or business activities within the conservation tourism area. Data were obtained through structured questionnaires and interviews, and analyzed using multiple linear regression supported by classical assumption tests. The results reveal that all four variables exert a positive and statistically significant influence on community income, both individually and collectively. Strategic location, well-developed infrastructure, effective promotional strategies, and participatory educational programs emerge as critical drivers of income growth. The findings suggest that sea turtle conservation tourism not only generates business opportunities and expands employment but also serves as a catalyst for local economic development. These insights provide valuable guidance for policymakers and tourism managers in formulating sustainable management strategies that simultaneously enhance economic benefits and safeguard environmental sustainability.

Keywords: sea turtle conservation tourism, community income, location, infrastructure, promotion, education.

INTRODUCTION

Tourism in Indonesia is now growing very fast. Most provinces in Indonesia are currently developing tourism programs that highlight the beauty and uniqueness of the culture and natural environment of each region. As an archipelagic country rich in various tourist destinations, including nature, culture, history, and culinary. Indonesia has significant potential to utilize the tourism sector as one of the main drivers of economic growth. Tourism can be defined as travel activities carried out by individuals or groups with the aim of vacation, recreation, or for other non-commercial reasons. Tourism according to the WTO is a global phenomenon that involves different types of travel that occur outside of one's permanent residence, with activities related to the place visited. With the existence of tourism, it can open up business opportunities and provide jobs, thereby increasing the income of the local community.

Tourism has great potential to be developed by understanding the needs and desires of tourists. It is important to dig deeper into the existing potential, so that all the advantages and opportunities that can be used can be optimized properly. However, this development must involve all related parties, both directly and indirectly. The potential of a region and the tourism sector are closely interconnected, where the two can collaborate to encourage regional economic progress and growth. Pariaman City is one of the areas known for its potential in the tourism sector. The city of Pariaman, which is located on the west coast of the island of Sumatra, has beautiful beaches. Some of the famous beaches are Gandoriah Beach, Mirror Beach, and Kata Beach. In addition to the beach, Pariaman City also has interesting islands, such as Angso Duo Island, Kasiak Island, Tengah Island, and Ujung Island. All tourist destinations in the city of Pariaman have helped increase regional income, as well as the economy of



the surrounding community. Therefore, it is necessary to develop tourism to achieve economic improvement.

Apar Village has interesting tourist destinations, one of which is turtle conservation tourism on the coast which is heeded with beach views. With the tourism potential that Apar Village has, it has enough attraction to be developed. The people of Apar Village realize that the conservation potential of this turtle can be developed into one of the tourist attractions. This has the potential to improve the economy of the local community. Therefore, one of the government's programs is the development of tourism through tourism villages to increase economic growth. The tourism sector is highly dependent on tourist visits, both domestic and foreign. With the increasing number of tourists visiting, the tourism sector is also growing and has a positive impact. The development of turtle conservation tourism provides good benefits for the economy, because it can increase the income of the local community. Thus, tourism development today emphasizes more on sustainable tourism. This provides ample space for the community to participate and improve their welfare.

Turtle conservation tourism is quite widely known among the public, with beauty that shows beach scenery and cool places. Even this conservation tourism also has several attractions such as *scuba diving*, *snorking* which can help to be promoted to the outside community. Turtle conservation tourism is one of the marine tourism attractions located in Apar Village, North Pariaman District. The study of the community around turtle conservation was carried out because turtle conservation attractions offer business opportunities for traders, tourist managers, and the community who provide transportation to bring tourists to the location, which of course has an impact on the income of the local community. Therefore, turtle conservation tourism needs to be developed because it is one of the determining elements in attracting tourists to visit turtle conservation tourist destinations. Therefore, the need for visitors' perception of turtle conservation attractions needs to be known as input for the management.

Table 1. 1 Number of Tourist Visits

No	Year	Number of visits
1.	2021	10.720
2.	2022	15.441
3.	2023	16.188
4.	2024	19.848

Source: UPTD West Sumatra Marine and Fisheries Service 2025

Based on the table above, every year the number of tourist visitors to turtle conservation increases, this has a positive impact on the region's original income if managed optimally. The existence of turtle conservation tourism certainly has an important contribution and role for the local community, especially in opening opportunities for job development such as carrying out trading activities and so on.

Table 1. 2 Income of the Apar Community

Income	Sum
1m – 2m	33 People
> 2 million – 4 million	5 People
5M	5 People
Total	43 People

Source: 2025 Survey Results

Based on table 1.2, it can be seen that of the 43 people whose income is 1 million - 2 million, 33 people with a percentage of 76.74%, the income of 2 - 4 million is 5 people with a percentage of 11.63%, 5 people with a percentage of 11.63%. That the income is people who work around tourist sites.

Table 1. 3 Economic Activities in Turtle Conservation Tourism Areas

No	Types of Activities	Sum
1	Warung	28 (people)
2	Parking attendant	3 (people)
3	Accommodation	1 (people)
4	Coffe shop	1 (people)
5	Woven swing	1 (people)
6	Mat Rental	2 (people)
7	Irrigation	2 (people)
8	Tour <i>guide</i>	5 (people)
	Total	43 people

Source: 2025 Survey Results

The development of turtle conservation tourism into an advanced tourist attraction will open up jobs and business fields for the people of Apar Village. Where previously the average community worked as fishermen and farmers, now they can supplement their living needs through businesses built in tourist locations. Such as opening food stalls, making handicrafts from weaving, and opening mat rental services. With various kinds of businesses established by the community, the income received by the community has increased from before.

METHODOLOGY

Research Design

This study uses a quantitative research design to examine the influence of turtle conservation tourism development on the income of local communities in Apar Village, Pariaman City. The analysis focuses on four independent variables—location, infrastructure, promotion, and educational programs—and their relationship to the dependent variable, community income. This study adopts an explanatory approach to test hypotheses formulated using statistical methods.

Population and Sampling

The research population consisted of 43 individuals who were directly involved in tourism-related economic activities within the conservation site of Apar Village and its surroundings. This includes food and beverage vendors, souvenir manufacturers, local transportation providers, guides, and conservation staff. Given the small and well-defined population, the total population sampling technique—also referred to as census—is used (Arikunto, 2010). This ensures complete data coverage, improves statistical reliability, and eliminates potential sampling errors.

Sources and data collection

(Sugiyono, 2018)The questionnaire consisted of closed-ended questions measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The item was designed to capture respondents' perceptions of the four independent variables and their income levels.



Data Collection

The data collection techniques used in this study are:

1. Interview
Here, the researcher asks questions directly to the respondent concerned by being open to information that is relevant to the problem related to the researcher.
2. Questionnaire
The questionnaire is a number of questions that will be distributed to the community or related actors to measure income before and after the tourism development being studied.
3. Observation Field visits are conducted to assess physical infrastructure, promotional materials, and on-site educational activities.

Definition of Variable Operational

Variable operation is an explanation of a variable measured in a study, so that it can be used as a clear and measurable reference. For this reason, there are several variables studied by researchers, namely:

a. Community Income (Y)

(Rahardja Prathama, 2019) explains that income is the total receipts (monetary and non-monetary) of an individual or household in a given period. According to (Irrahma, 2017), income is the earnings obtained after engaging in activities in the tourism sector. People earn income if they work and receive wages from their work. (Harahap Syafri Sofyan, 2011) defines income as an inflow or increase in the value of assets from the settlement of an entity's obligations during a certain period arising from the delivery of goods, the provision of services, or the performance of other activities.

b. Location (X1)

(Alma, 2003) choosing a location greatly determines the success and failure of the business in the future. (Alma, 2003) memilih lokasi sangat menentukan keberhasilan dan kegagalan usaha dimasa yang akan datang.

1. Tourist attractions, locations must have natural, cultural, or man-made attractions that are able to attract tourists. Such as natural beauty such as beaches, mountains, or national parks.
2. The accessibility of the location of a tourist attraction must be easily accessible by tourists, both through two-wheeled and four-wheeled vehicles. Adequate infrastructure such as highways, it is also an important factor.
3. Facilities, tourist locations require facilities such as accommodation, places to eat, parking lots, public toilets, and other supporting factors.
4. The environment is the state of the environment of the tourist attraction which includes the cleanliness and comfort of the environment.

c. Infrastructure (X2)

According to (Hapsari Tunjung, 2011) infrastructure is a basic service or service that provides comfort and convenience in industrial, agricultural, and other economic development activities. Infrastructure is the main role in developing tourism in supporting tourism activities and as a necessary facility for the economy to run well, infrastructure indicators are halls, clean water, electricity, lodging and so on.

d. Promotions (X3)

According to (Kotler, 2010) promotion is the process of communication of a company with current and future interested parties as well as the community. It can be concluded that tourism promotion is an activity carried out by tourist attractions to be able to attract tourists to return to visit these tourist attractions.

e. Education Program (X4)

According to (Prasetyo & Nararais Detin, 2023), tourist destinations based on educational programs are very important to introduce Indonesia's cultural, historical, and natural diversity to local and international tourists. According to (Cahyani Nurlita Dwi Kadek Ni & et al, 2024) educational programs provide visitors with the opportunity to learn about history, culture and natural beauty with educational programs can also increase visitors' awareness of the importance of

preserving natural culture and environment. The Education Program in tourism development is an effort to provide understanding, knowledge, and awareness to the community, tourists about the importance of maintaining environmental sustainability, local culture, and economic benefits from tourism.

Teknik Analisis Data

Data analysis was carried out using multiple linear regression to determine the influence of independent variables on dependent variables. Prior to the regression analysis, classical assumption tests—normality, multicollinearity, and heteroskedasticity—were performed to ensure the validity of the model (Ghozali, 2016). Hypothesis tests include:

Partial t-test: to determine the extent to which an independent variable individually influences the dependent variable. This test looks at the significance value. If the significance value (p-value) < alpha (0.05), then there is a significant influence of the independent variable on the dependent variable.

Simultaneous F-test To determine whether the independent variables collectively have a significant effect on the dependent variable. If the significance value (p-value) is < 0.05, it can be concluded that the independent variables have a significant combined effect on the dependent variable. If the significance value (p-value) is > alpha (0.05), it can be concluded that there is no significant combined effect (simultaneously).

Coefficient of Determination (R^2): measures how well the model explains the variation in the dependent variable. The coefficient of determination in this study uses the R Square value in the model summary. The coefficient of determination ranges from zero (0) to one (1). If the R^2 value is close to 1, then the magnitude of the independent variable's influence on the variation (fluctuations) of the dependent variable is consistent with the R^2 value, and the remainder comes from outside the model. All statistical analyses were performed using SPSS software version 24. A significance level of 5% ($\alpha = 0.05$) was applied to determine statistical significance.

RESULTS & DISCUSSION

Tabel 1.4 Descriptive Analysis Test

	N	Minimum	Maximum	Mean	Hours of deviation
location	43	13	20	16,67	2,055
Infrastructure	43	19,00	34,00	27,2326	3,49038
Promotion	43	14,00	20,00	17,093	1,7432
Educational programs	43	11,00	19,00	15,907	2,28675
Income	43	9,00	15,00	12,6279	1,51222
Valid N (listwise)	43				

Source: Processed products using Spss 24

Descriptive analysis showed that the number of samples (N) was 43. The location showed a minimum value of 13 a maximum value of 20, (average) 16.67 with a standard deviation of 2.055. Infrastructure shows a minimum value of 19.00, a maximum value of 34.00, an average of 27.2326 with a standard deviation of 3.49038. Promotion shows a minimum value of 14.00 a maximum value of 20.00 an average of 17.907 with a standard deviation of 1.7432, Meanwhile, the education program has a minimum value of 11.00 a maximum value of 19.00 an average of 15.907 with a standard deviation of 2.28675 The minimum value of Income is 9.00 the maximum value is 19.00, the average is 12.6279 with a standard deviation of 1.51222.

Classical Assumption Test

Normality Test

The purpose of the normality test is to test whether in the regression model, the dependent variable or both are distributed normally or not, the data test in this study was carried out using *Kolmogrov-Smirnov* (KS).

Table 1.5 Results of the Kolmogrov- Smirnov Test Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		43
Normal Parameters ^{a,b}	Mean	,0000000
	Hours of deviation	,40334966
Most Extreme Differences	Absolute	,105
	Positive	,067
	Negative	-,105
Test Statistic		,105
Asymp. Sig. (2-tailed)		,200 ^{c,d}
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Source : *Processed Data 2025*

Based on the normality test with the kolmogrov-smirnov approach in the table above, it can be seen that the data is distributed normally. This is seen through the asymp value. The sig. (2-tailed) obtained is $0.200 > 0.05$, which means that the residual value is declared to be spread normally.

Multicollinearity Test

To detect whether or not multicollinearity occurs, it can be seen from the VIF (*Variance Inflation Factor*). In accordance with the results of the tests that have been carried out, the following results were obtained.

Table 1.6 Multicollinearity Test Results

Coefficients^a			
Model		Collinearity Statistics	
		Tolerance	BRIGHT
1	(Constant)		
	Location (X1)	,693	1,442
	Infrastructure (X2)	,784	1,276
	Promotions (X3)	,625	1,599
	Education Program (X4)	,934	1,071

a. Dependent Variable: Pendapatan (Y)

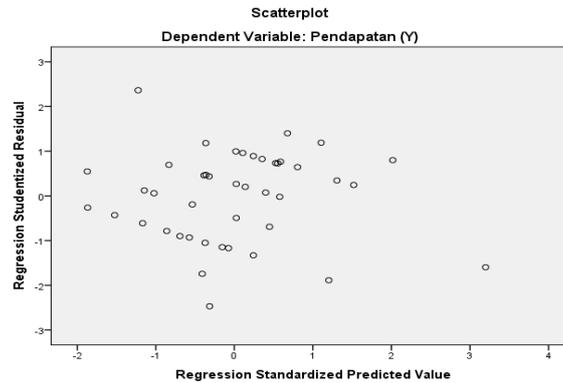
Source : *Processed Data 2025*

From the table above, it can be seen that all independent variables have a tolerance value of > 0.10 and a VIF (*variance inflation factor*) value of < 10 so that it can be concluded that all independent variables are free from multicollinearity deviations.

Heteroscedasticity Test

Heteroscedasticity tests were performed to test whether there was variance disparity in the regression function. The heteroscedasticity test was carried out by the scatterplot method, namely by looking at the distribution of point patterns in the regression scatterplot.

Figure 1.1 Heteroscedasticity Test



Source: Processed Data 2025

From the above data that there is no clear pattern, the dots do not form a certain irregular pattern such as wavy, widening and narrowing, dots spread above and below zero, and the spread of the sample in the positive and negative directions. Therefore, it can be concluded that this data is free from heteroscedasticity problems.

Multiple Linear Regression Analysis

This regression model aims to determine the influence between independent variables on dependent variables.

Table 1.7 Multiple Linear Regression Analysis Test Results

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Itself.
		B	Std. Error	Beta		
1	(Constant)	9,867	,810		12,182	,000
	Location (X1)	-,219	,038	-,563	-5,737	,000
	Infrastructure (X2)	-,123	,021	-,537	-5,817	,000
	Promotions (X3)	,376	,047	,819	7,931	,000
	Education Program (X4)	,210	,030	,599	7,084	,000

a. Dependent Variable: Pendapatan (Y)

Source: Processed Data 2025

Based on the data above, the regression equation can be compiled as follows:

$$Y = 9.867 - 0.219X_1 - 0.123X_2 + 0.376X_3 + 0.210X_4 + \varepsilon$$

Interpretation based on the equation can be interpreted as follows:

- If the Location, Infrastructure, Promotion and Education Program remains or equal to 0, then the income of the community in the turtle conservation tourism area is 9,867.
- If access to turtle conservation tourism sites decreases by 1 point, the income of the community in the turtle conservation tourism area will decrease by 0.219 percent.
- If the quality of infrastructure decreases by 1 point, the income of the community in the turtle conservation tourism area will decrease by 0.123 percent.
- If the promotion increases by 1 point, the income of the community in the turtle conservation tourism area will increase by 0.376 percent.

- If the education program increases by 1 point, the income of the community in the turtle conservation tourism area will increase by 0.210 percent.

Hypothesis Test

Simultaneous Test (F Test)

This test is carried out to find out whether all the independent variables included in the model can have a simultaneous effect on the dependent variables.

Table 1 Test Results (F)

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Itself.
1	Regression	20,124	4	5,031	27,979	,000b
	Residual	6,833	38	,180		
	Total	26,957	42			
a. Dependent Variable: Pendapatan (Y)						
b. Predictors: (Constant), Educational Program (X4), Promotion (X3), Infrastructure (X2), Location (X1)						

Source : Processed Data 2025

Based on the results of data analysis, a significance value of $0.000 < 0.05$ was obtained. Therefore, it can be concluded that the variables of location (X1), infrastructure (X2), promotion (X3) and educational programs (X4) together have a significant effect on the variables of community income (Y).

Partial Test (T Test)

Hypothesis testing was carried out to determine whether there is an influence of independent variables with dependent variables.

Table 1.9 Test Results (t)

No.	Research Variables	Itself	Alpha	Conclusion
1	Tourist Locations	0,000	0,05	Accepted
2	Infrastructure	0,000	0,05	Accepted
3	Promotion	0,000	0,05	Accepted
4	Education Programs	0,000	0,05	Accepted

Source : Processed Data 2025

The partial test of the X1 variable or location affects the income of the community because the significance value of 0.000 is less than 0.05. The X2 variable of infrastructure has an influence because the significance value of 0.000 is less than 0.05. The promotional X3 variable has an influence because the significance value of 0.000 is less than 0.05. And then, the educational program's X4 variable has an influence because the significance value of 0.000 is less than 0.05.

Test Coefficient of Determination (R2)

Determination coefficient analysis was carried out to find out how much the percentage contribution of independent variables to dependent variables.

Table 2.1 Determination Coefficient Test Results (R²)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,864a	,747	,720	,42405
a. Predictors: (Constant), Educational Program (X ₄), Promotion (X ₃), Infrastructure (X ₂), Location (X ₁)				

Source : Processed Data 2025

From the results of the data above, it shows the R Square number of 0.747 or 74.7% which means 74.7% can be explained that the variation in the income of the people of Apar Village is influenced by the variables of location, infrastructure, promotion and educational programs while the remaining 25.3% is influenced by variables outside the model.

Discussion

These findings confirm that tourism development, when supported by strategic locations, strong infrastructure, targeted promotions, and participatory education programs, can significantly increase people's incomes in conservation-based destinations. These results are consistent with ecotourism theories that emphasize sustainability and community engagement (Gössling, 2012). The integration of environmental conservation with economic benefits creates a mutually reinforcing relationship: tourism supports conservation funding, while conservation activities provide a unique tourism experience that sets destinations apart.

The study reinforces the need for tourism policymakers and managers to adopt an integrated development approach, ensuring that physical infrastructure, marketing strategies, and educational initiatives are implemented in synergy to maximize the socio-economic benefits of conservation tourism.

CONCLUSION

The regression model shows that the four independent variables significantly affect people's incomes, both individually and collectively. The determination coefficient (R²) indicates that the model explains a substantial proportion of the variance in people's income, with the remaining variance associated with other factors that are not observed.

1. Location (X₁): It has a positive and significant effect on people's income, showing that accessibility, parking, facilities, and a convenient environment directly encourage more tourist visits, thereby increasing economic benefits (Meutia & Rizal, 2022; Hospitality, 1929).
2. Infrastructure (X₂): Shows a significant positive impact, in line with previous findings that adequate infrastructure increases tourist satisfaction and increases length of stay (Meutia & Rizal, 2022).
3. Promotion (X₃): Significantly affects revenue, confirming that effective promotion—especially through digital platforms—attracts more visitors and stimulates local economic activities (Tjiptono, 2014;).
4. Education Program (X₄): Income is positively influenced, as interactive learning experiences such as hatchling releases and guided tours increase tourist engagement while creating additional income opportunities for locals (Mardiyanı & Murwatıningsih, 2015).

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