

The Role of Tourism Development in Regional Planning and Poverty Alleviation: A Case Study of Bukit Lawang and Tangkahan, Langkat Regency

ABSTRACT

This research aims to analyze the impact of tourism development on regional planning and poverty alleviation in the Bukit Lawang and Tangkahan tourist areas of Langkat Regency. A quantitative approach with associative methods was employed, involving 150 respondents from local communities and regional officials. Data were collected through questionnaires and analyzed using Structural Equation Modeling (SEM) with SmartPLS software. The results indicate that tourism development significantly influences regional planning, but it does not directly contribute to poverty alleviation in the area. Moreover, regional planning did not significantly affect poverty reduction and failed to mediate the relationship between tourism development and poverty alleviation. This study concludes that while tourism development holds great potential for improving infrastructure and regional economic growth, its impact on poverty reduction remains limited. Therefore, more holistic and well-planned strategies are required to maximize the benefits of the tourism sector in supporting poverty alleviation. The recommendations include improving infrastructure, enhancing accessibility between tourist destinations, and exploring other variables such as unemployment rates and social assistance in future research to better understand the factors influencing regional planning and poverty reduction.

Keywords: tourism development, regional planning, poverty alleviation, Bukit Lawang, Tangkahan

I. INTRODUCTION

Natural tourism is increasingly popular among both domestic and international tourists. Nature tourism offers a unique attraction by providing the beauty of the natural environment and opportunities to interact with flora and fauna. In Langkat Regency, Bukit Lawang and Tangkahan are two important ecotourism destinations known for their rich wildlife, such as elephants and orangutans (Waluyo et al., 2022; Husin, Andriani & Saputra, 2022). These destinations have gained significant attention due to their potential to become world-class tourist attractions, supported by the North Sumatra Provincial Government (Pakpahan, 2018).

Nature-based tourism also contributes to promoting local economic growth. Research suggests that community-based tourism development can enhance the well-being of local communities (Ashley & Garland, 1994). This form of tourism allows local residents to engage directly in the tourism industry through the

management of homestays, restaurants, or the sale of local products (Satria, 2009; Rewah, Kumenaung & Rotinsulu, 2021). Consequently, tourism benefits not only large businesses but also local communities.

However, tourism development in Langkat Regency faces several challenges. Data show a decline in tourist visits in recent years (Langkat Regency Government, 2023). One major obstacle is the lack of infrastructure connecting the various tourist attractions, which makes it difficult for visitors to access scattered destinations (Gunadi, 2019; Surur, Cahya & Wahid, 2019). Another contributing factor is the lack of comprehensive tourism promotion, which has limited the region's ability to maximize its tourism potential (Permatasari, Priyarsono & Rifin, 2016).

The development of tourism infrastructure, such as roads, accommodations, and supporting facilities, is a top priority for enhancing tourism attractiveness (Hermawan, 2024). According to Pakpahan (2018), accessibility is a critical factor in tourists' choice of destination. Visitors tend to prefer destinations that are easily accessible and equipped with adequate facilities. Without proper infrastructure, even the most scenic areas may lose their appeal drastically.

In addition to infrastructure development, proper regional planning plays a key role in supporting the tourism sector (Rustiadi, 2018; Matondang, 2022). Integrated planning between the tourism sector and other sectors such as agriculture and industry can create strong synergies in regional development (Santoso & Rahayu, 2014). Previous studies have shown that tourism development, supported by effective regional planning, can contribute significantly to economic growth and poverty reduction (Hadju, Masinambow & Maramis, 2021).

Poverty alleviation is one of the key benefits of tourism development. Tourism provides job opportunities for local communities, especially in labor-intensive sectors such as accommodation, food services, and transportation (Yunus, 2007; Nasution, 2006). Additionally, tourists who visit local areas contribute to the economy by purchasing goods and services, which ultimately increases local incomes (Zainuri, Priyono & Varazizah, 2021).

In Langkat Regency, poverty rates remain relatively high, although there has been a decline in the number of poor residents from 10,045 in 2022 to 9,816 in 2023 (Langkat Regency Government, 2023). This reduction indicates that community-based tourism development has the potential to further reduce poverty levels. This study aims to analyze in greater depth how tourism-based regional development can contribute to poverty alleviation in Langkat Regency.

Through the approach of community-based tourism development, tourism is expected to continue to grow by involving active participation from local communities in managing and developing tourist destinations (Cinditya & Umilia, 2013). The findings of this study are expected to provide guidance for local

governments in designing effective policies and strategies to develop the tourism sector in order to reduce poverty and improve community welfare.

II. RESEARCH METHODOLOGY

2.1 Research Location and Duration

This study was conducted in Langkat Regency, selected for its tourism potential, particularly in Bukit Lawang and Tangkahan. The location was chosen using purposive area sampling, as these sites represent key tourist destinations in the region. The research took place from January to March 2024.

2.2. Research Type

This is a quantitative study using an associative/correlational approach, aiming to identify the relationships between the independent and dependent variables. Inferential statistical analysis was employed to determine the degree of relationship and influence between the variables.

2.3 Data and Data Sources

The data used in this study consists of both primary and secondary sources. Primary data were collected through questionnaires and direct interviews with respondents. Secondary data were obtained from the Langkat Regency Tourism Office and other relevant documents.

2.4 Population and Sample

The study's population consists of local residents and regional officials in Langkat Regency, targeting 150 respondents. The sample was selected using purposive sampling to represent the relevant population characteristics. Additionally, incidental sampling was applied, where respondents encountered and willing to participate in interviews were included as part of the sample.

2.5 Operational Definitions of Variables

This study uses two main variables:

- Exogenous Variable (X): Tourism Development. This includes the attractiveness of tourist sites, infrastructure, accessibility, and institutional support.
- Endogenous Variables (Y):
 - Regional Planning (Y1): Improvement of regional benefits through economic, social, and infrastructural aspects.
 - Poverty Alleviation (Y2): Efforts to enhance community welfare, focusing on human resources, income levels, and access to education and healthcare.

Table 1. Operationalization of Variables

Variable	Definition	Indicator	Measurement Scale
Tourism Development (X)	Development of natural tourism based on tourists' needs	1. Tourist attractions 2. Infrastructure 3. Accessibility 4. Institutional support	Interval
Regional Planning (Y1)	Improvement of regional benefits	1. Economy 2. Social Infrastructure	Interval
Poverty Alleviation (Y2)	Efforts to reduce poverty	1. Human resources 2. Income increase 3. Access to education & healthcare	Interval

2.6 Data Analysis Techniques

Data were analyzed using Structural Equation Modeling-Partial Least Square (SEM-PLS). SEM-PLS modeling was employed to examine the relationships between latent exogenous and endogenous variables using the SmartPLS software (Ferdinand, 2016). The analysis procedure includes:

1. Theoretical Model Planning: The theoretical model is built based on a literature review and empirically tested.
2. Path Diagram: The theoretical model is converted into a path diagram to simplify the interpretation of causal relationships between variables.
3. Equation Conversion: The path diagram is converted into structural and measurement equations.
4. Data Input: A variance/covariance matrix is used as input for SEM estimation.
5. Goodness-of-Fit Evaluation: The model's fit is assessed using various indices, such as Chi-Square, RMSEA, GFI, AGFI, TLI, and CFI.
6. Model Interpretation and Modification: Modifications are made based on residuals and error predictions to improve the model.

III. RESULTS AND DISCUSSION

3.1 Research Results

3.1.1 Overview of the Study Area

Langkat Regency is one of the regencies in North Sumatra Province, with significant potential for tourism development, particularly through ecotourism in Bukit Lawang and Tangkahan. Bukit Lawang is famous as the gateway to Gunung Leuser National Park, offering trekking opportunities to observe orangutans in their natural habitat. Meanwhile, Tangkahan is known for conservation-based ecotourism, offering elephant trekking and hot springs. These two destinations present high tourism potential, both in terms of natural beauty and cultural experiences (Pakpahan, 2018; Hermawan, 2024).



Figure 1. Research Location

However, the development of tourism in Langkat Regency faces challenges, such as inadequate infrastructure and poor waste management. The roads leading to tourist sites are suboptimal, particularly during the rainy season. Moreover, there is a need for improved supporting facilities, such as accommodations, transportation, and sanitation, to ensure tourists' comfort and preserve the environment (Waluyo et al., 2022).

3.1.2 Descriptive Analysis of Respondents

This study involved 150 respondents, consisting of local residents and regional officials in the Bukit Lawang and Tangkahan tourist areas. Based on the analysis of respondents' characteristics, the majority were women (80%), with the dominant age range being 41-50 years old (33.3%). Most respondents had completed secondary education (66%), with the majority earning between IDR 5,000,001 and IDR 9,000,000 (47.3%). Only 8% of respondents had incomes above IDR 9,000,000, reflecting economic disparities in the area (Husin et al., 2022).

Table 2. Distribution of Respondents by Gender, Age, Education, and Income

Description	Frequency	%
Gender: Female	120	80%
Gender: Male	30	20%
Age 18-30 Years	45	30%
Age 31-40 Years	38	25.33%
Age 41-50 Years	50	33.33%
Age >50 Years	17	11.33%
Education: High School	99	66%
Education: Bachelor's Degree	22	14.67%
Income: IDR 5-9 million	71	47.33%

3.1.3 Descriptive Statistics

Descriptive statistical analysis of the variables Tourism Development (X), Regional Planning (Y1), and Poverty Alleviation (Y2) shows that all indicators have high mean values, indicating that most respondents agree on the importance of tourism development and regional planning in reducing poverty. The item with the highest score under the Tourism Development variable is PWS6 (accessibility), highlighting the importance of road and transportation infrastructure in supporting tourism (Agustini et al., 2023).

Table 3. Descriptive Statistics for Tourism Development Variables

Item	N	Min	Max	Mean	Std. Deviation
PWS1	150	3.00	5.00	4.36	0.572
PWS6	150	2.00	5.00	4.50	0.711

3.1.4 Data Quality Testing

3.1.4.1 Validity Testing

Validity testing ensures that the instruments used in this research accurately measure the intended constructs. Convergent and discriminant validity were assessed. Convergent validity was tested using the loading factor and Average Variance Extracted (AVE). The results show that all indicators have loading factors > 0.7 and $AVE > 0.5$, confirming that all constructs meet the criteria for convergent validity (Jogiyanto, 2009).

Table 4. Outer Loading and AVE Values for Validity Testing

Variable	Outer Loading	AVE
Tourism Development	0.736 - 0.871	0.554
Regional Planning	0.687 - 0.846	0.614
Poverty Alleviation	0.748 - 0.812	0.592

3.1.4.2 Reliability Testing

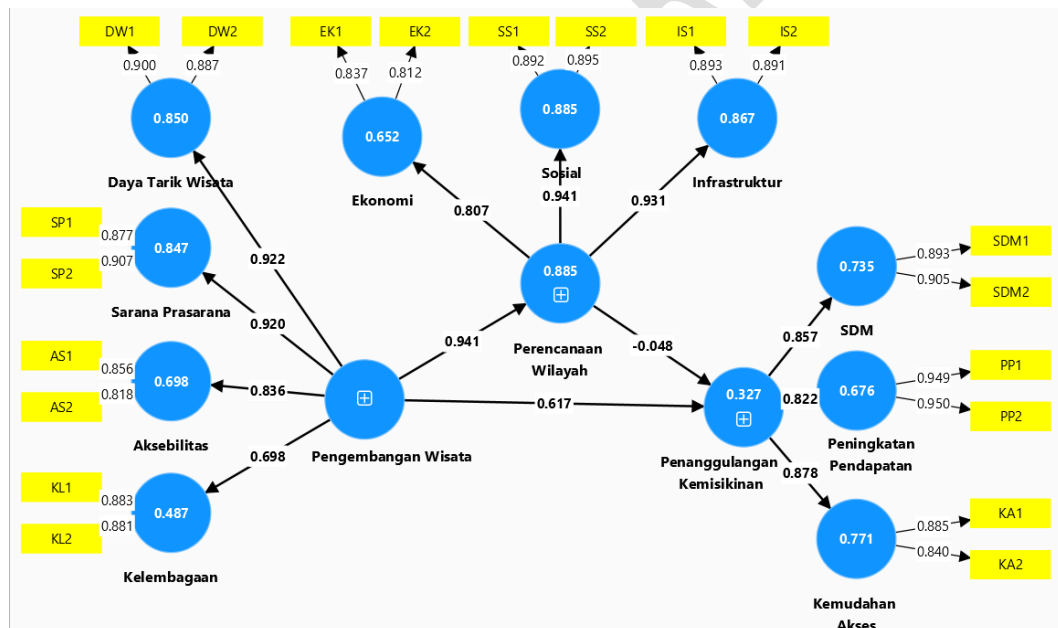
Reliability was tested using Cronbach's alpha and composite reliability. The results show that all variables have composite reliability values above 0.7, indicating that the instruments used are reliable and consistent in measuring the intended constructs.

Table 5. Cronbach's Alpha and Composite Reliability Values

Variable	Cronbach's Alpha	Composite Reliability
Tourism Development	0.854	0.894
Regional Planning	0.809	0.882
Poverty Alleviation	0.805	0.863

3.1.5. Structural Model Testing (R-Square)

The R-square value measures the contribution of exogenous variables in influencing endogenous variables. Based on the data processed with SmartPLS, the R-square value for Regional Planning is 0.885, meaning that 88.5% of its variability is influenced by Tourism Development, while the R-square value for Poverty Alleviation is 0.327, indicating that 32.7% is influenced by Tourism Development and Regional Planning, with the remainder influenced by other factors not included in this model.



Source: Data Processed, 2024

Figure 2. R-Square SmartPLS 4.0

3.1.6 Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping method in SmartPLS. The results indicate that Tourism Development significantly influences Regional Planning and Poverty Alleviation, while Regional Planning does not significantly affect Poverty Alleviation.

Table 6. Hypothesis Testing Results

Hypothesis	T-Statistic	P-Value	Conclusion
Tourism Development -> Regional Planning	51.170	0.000	Significant
Tourism Development -> Poverty Alleviation	2.643	0.008	Significant
Regional Planning -> Poverty Alleviation	0.185	0.853	Not Significant

4.2. Discussion

4.2.1. The Influence of Tourism Development on Regional Planning

The study results demonstrate that Tourism Development significantly influences Regional Planning. Developing tourist destinations like Bukit Lawang and Tangkahan requires well-coordinated regional planning to support infrastructure, accessibility, and sustainable tourism (Rustiadi, 2018). This is consistent with previous research, which suggests that tourism development fosters local economic growth and job creation (Hermawan, 2024).

4.2.2. The Influence of Tourism Development on Poverty Alleviation

This study also shows that Tourism Development significantly influences Poverty Alleviation. The increase in local incomes through community-based tourism, especially in rural areas, helps to reduce poverty (Yunus, 2007). However, the study also reveals that these benefits have not been fully distributed, as disparities remain between local communities and external investors (Satria, 2009).

4.2.3. The Influence of Regional Planning on Poverty Alleviation

The findings indicate that Regional Planning does not significantly influence Poverty Alleviation. This suggests that existing planning efforts have not yet been effective in bridging the economic gap in the area. Issues such as bureaucracy and unequal budget allocation are the main obstacles to more inclusive regional planning (Hadju et al., 2021).

4.2.4. Regional Planning as a Mediator between Tourism Development and Poverty Alleviation

The study shows that Regional Planning does not significantly mediate the relationship between Tourism Development and Poverty Alleviation. This suggests that, while tourism development can provide economic benefits, current regional planning efforts are not yet optimized to support poverty alleviation objectives (Rustiadi, 2018). Strengthening regional planning that is more participatory and data-driven is needed to maximize the economic benefits of the tourism sector.

IV. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusion

This study demonstrates that tourism development has a significant impact on regional planning in the Bukit Lawang and Tangkahan tourist areas. However, its contribution to poverty alleviation remains limited, as tourism development has not directly reduced poverty in these areas. Additionally, regional planning was found to have no significant influence on poverty alleviation and was unable to mediate the relationship between tourism development and poverty reduction. Although tourism holds great potential for improving infrastructure and promoting regional economic growth, the current strategies in place are not sufficient to leverage this sector effectively for poverty reduction. Therefore, a more comprehensive and coordinated approach is necessary to maximize the benefits of tourism in supporting poverty alleviation efforts.

4.2 Recommendations

To address the limitations identified in this study, several key strategies should be considered. First, infrastructure development must be improved, particularly in terms of integrated transportation systems that connect Bukit Lawang and Tangkahan. This would enhance economic opportunities by making the area more accessible to visitors. Additionally, it is crucial to develop environmentally friendly infrastructure that not only supports accessibility but also preserves the natural environment of these ecotourism destinations, ensuring their sustainability.

Regional planning should also be made more inclusive to ensure that the economic benefits of tourism development are distributed more equitably across local communities. This can be achieved by involving local stakeholders in participatory planning processes that focus on addressing economic disparities. Furthermore, efforts to strengthen community-based tourism initiatives should be increased, enabling local residents to play a more active role in managing and developing tourism in their areas. Providing training and support for small businesses, such as homestays, restaurants, and the sale of local products, would help ensure that the economic benefits of tourism reach a wider segment of the population.

Lastly, future research should explore additional factors such as unemployment rates, social assistance, and the broader economic potential of the region. Investigating these variables may provide deeper insights into how regional planning and tourism development can be optimized to effectively reduce poverty in Langkat Regency. By implementing these strategies, the region can better capitalize on its tourism potential to support poverty alleviation while preserving its natural and cultural heritage for future generations.

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