

5A-Based Tourism and Local Economy: An Empirical Study of Koanara and Mulut Seribu, East Nusa Tenggara

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Abstract

This study analyzes the economic characteristics of local communities, the influence of 5A-based tourism development on local economic growth, and the environmental impacts of tourism activities in the Koanara and Mulut Seribu tourist destinations, East Nusa Tenggara Province, Indonesia. This study used a mixed-methods approach with a concurrent embedded design. Data were collected from 97 respondents through purposive sampling and 10 key informants through snowball sampling. Partial Least Squares (PLS) analysis with the SmartPLS 3.0 program was used to test five hypotheses regarding the influence of attractions, accessibility, accommodation, amenities, and awareness on community economic development. The results showed that local communities play a role as business owners (56%) and workers (44%), with 95% of business ownership coming from local residents. Most respondents reported increased income (80%) and improved family economic conditions (81%) after being involved in tourism businesses. The statistical test results prove that the five 5A components have a significant influence on the economic development of local communities (T-statistic > 1.96; p-value < 0.05), with the model able to explain 97.2% of the community's economic variance ($R^2 = 0.972$). The environmental impact analysis shows a more dominant positive influence, including improvements in physical infrastructure and socio-cultural preservation, although land conversion for accommodation and changes in social values are important notes. These findings confirm that integrated tourism development based on 5A substantially contributes to local economic sustainability while still requiring strategic management to mitigate adverse environmental impacts.

Keywords: 5A-based tourism development; local economic impacts; environmental impacts; SMART PLS, East Nusa Tenggara (NTT)



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INTRODUCTION

Background

Tourism has become one of the key sectors driving local economic growth in Indonesia, yet not all destinations are able to generate sustainable benefits for surrounding communities. Evidence indicates that many village-based tourism sites struggle with limited accessibility, low levels of community participation, and insufficient diversification of attractions. These challenges are particularly evident in Koanara and Mulut Seribu, where rich natural and cultural resources remain underutilized in supporting local economic welfare. Against this backdrop, the present study examines the application of the 5A framework (Attraction, Accessibility, Amenities, Ancillary, Awareness) as a strategic approach to tourism development. The aim is to explore how this model can enhance destination appeal while simultaneously strengthening the economic sustainability of local communities.

East Nusa Tenggara Province, as one of the provinces that has extraordinary tourism potential, is supported by a tourism development mission, namely positioning East Nusa Tenggara as one of the gateways and centers for national tourism development, a sustainable tourism destination development framework has been formulated based on the fulfillment of the 5A components through an area-based approach using the Tourism Estate concept. This concept refers to the development of an integrated and dynamic tourism industrial zone that promotes economic growth, job creation, income enhancement, and the strengthening of productive sectors (Regulation of the Governor of East Nusa Tenggara No. 30 of 2020).

The 5A-based tourism destination development framework consists of the following components: (1) Attractions, which refer to the tourism attractions available at a destination, including natural attractions, cultural heritage, local

community activities, historical buildings, and man-made attractions. Attractions constitute the core component of a destination, encompassing natural and cultural resources, community activities, and artificial attractions that influence tourists' perceptions of destination quality and their intention to visit (Jiang et al., 2023; Liew et al., 2025). (2) Accessibility, which relates to access to the destination, such as the availability and quality of transportation and travel distance. Accessibility, including transportation availability, infrastructure quality, and ease of reaching the destination, plays a crucial role in enhancing destination competitiveness and expanding tourism market segments (Alsharif et al., 2024). (3) Accommodation, which refers to the availability of lodging facilities for tourists at the destination. (4) Amenities, which relate to supporting facilities available at tourism destinations, such as healthcare facilities, toilets, and parking areas. (5) Awareness, which refers to community involvement in activities that support tourism development, including participation in economic activities and initiatives aimed at preserving the environment and natural surroundings of the destination (Sunaryo, 2013). Efforts to fulfill the 5A components require cross-sectoral collaboration and cooperation. Effective tourism destination development necessitates collaboration among government institutions, business actors, and local communities to ensure the integration of attractions, accessibility, facilities, and social sustainability (Alsharif et al., 2024; Jiang et al., 2023).

The Provincial Government of East Nusa Tenggara, through the Department of Tourism and Creative Economy and several related regional agencies, has developed the 5A concept using an area-based approach across seven (7) provincial priority tourism destinations. These include the Koanara PE in Ende Regency, the Lamalera PE in Lembata Regency, and the Fatumnasi PE in South Central Timor (TTS) Regency, the Mulut Seribu Tourism Estate (PE) in Rote Ndao Regency, the

Wolwal PE in Alor Regency, the Liman PE in Kupang Regency, the Pramadita PE in East Sumba Regency (Regulation of the Governor of East Nusa Tenggara No. 220 of 2020 concerning Tourism Areas for the Acceleration of Tourism Estate Development in East Nusa Tenggara Province in 2021). The development of the tourism sector based on the 5A framework with an area-based approach across these seven destinations is expected to contribute to regional revenue, employment absorption, economic growth, and the stimulation of investment. Ultimately, tourism development aims to improve the welfare of local communities surrounding tourism destinations.

Tourism development in a region should always consider the benefits and advantages for the local population (Yoeti, 2008). The development of the tourism industry represents one of the key strategies for improving community economic conditions at both local and global levels (Utami, 2016). Through tourism development, local communities around destinations are expected to be actively involved in tourism-related economic activities, enabling them to generate income that ultimately enhances their welfare. According to Kurniawati (2019), the economic impacts of tourism development on local communities at a tourism destination include: (a) increased household income, (b) the creation of new employment opportunities for local residents as well as opportunities to establish new businesses, (c) the stimulation of regional development in surrounding areas, and (d) the increased availability of public facilities, such as accommodation, shopping centers, and other supporting infrastructure.

The development of the tourism sector based on the 5A framework at tourism destinations such as the establishment of restaurants or dining facilities, the provision of accommodation in the form of lodging, the development of shopping and souvenir centers, and the provision of other supporting tourism facilities has an impact

on the creation of employment opportunities for surrounding communities, thereby generating economic benefits for local residents in areas adjacent to the destinations. Consequently, the implementation of 5A-based tourism development in East Nusa Tenggara across the seven (7) priority tourism destinations must give due consideration to the economic benefits accrued by local communities surrounding these tourism destinations.

In addition to economic impacts, it is also necessary to consider the environmental impacts arising from tourism activities at tourist destinations. An increase in visitor numbers, along with the development of tourism infrastructure, may lead to environmental problems at destinations, such as increased solid waste and wastewater generation, air pollution, sanitation issues, and aesthetic degradation (Iffa et al., 2015; Sahu et al. 2014). Similar arguments are presented by Gössling (2002), who states that tourism activities have environmental consequences, including changes in land use for the development of accommodation, infrastructure, and recreational facilities, which may result in erosion, increased waste generation, and higher energy consumption that contributes to rising CO₂ emissions, alterations to biotic systems, species extinction, increased water use, and the spread of diseases.

Given the various negative environmental impacts generated by tourism activities, it is essential to pay close attention to the preservation of ecosystems at tourism destinations in order to maintain the continuity and sustainability of ecosystems and natural resources surrounding these destinations. Therefore, the implementation of 5A-based tourism development undertaken by the Provincial Government of East Nusa Tenggara at several priority tourism destinations such as Koanara and Mulut Seribu aimed at increasing tourist arrivals, must carefully consider the environmental impacts occurring in the surrounding destination areas.

Based on these issues, this study aims to analyze the influence of 5A-based tourism development on the economic sustainability of local communities and the environmental impacts arising from tourism activities. The importance of this research lies in addressing gaps that have not been sufficiently explored in prior studies. Theoretically, existing literature has primarily emphasized the general economic contributions of tourism, such as income growth and employment creation, without systematically examining how the 5A framework can balance economic development with environmental sustainability. Empirically, evidence remains limited for less-developed regions such as East Nusa Tenggara, which possess distinct socio-economic and geographical characteristics compared to Indonesia's major tourism destinations. From a policy perspective, there is a notable gap between government-led tourism estate initiatives and the lived realities of local community participation and environmental management. To respond to these gaps, the scope of this study is confined to two (2) tourism destinations, namely the Koanara tourism destination in Ende Regency and the Mulut Seribu tourism destination in Rote Ndao Regency, thereby providing focused empirical insights into how the 5A framework operates in practice. By situating the analysis within these contexts, the study contributes both to academic discourse and to policy development aimed at fostering tourism that is economically inclusive and environmentally sustainable.

Research Objectives

This study aims to understand an overview of the economic characteristics of the local community around the destination, to understand the impact of 5A-based tourism development on the local community's economy around the destination and to understand the environmental impacts caused by the development of tourism at the tourist destination.

To address this gap, this study is guided by the following research questions: (1) What are the characteristics of the local community's economy around the destination?; (2) Is there any influence of 5A-based tourism development on the improvement of the local community's economy around the destination?; (3) What are the environmental impacts caused by tourism development at the tourist destination?

LITERATURE REVIEW

Tourism is all kinds of travel-related activities supported by various facilities and services provided by the community, business actors, the Government, and Local Governments. Meanwhile, travel is defined as an activity undertaken by an individual or a group of people by visiting a particular place for recreational purposes, personal development, or to explore the unique attractions of the destination within a temporary period (Law Number 10 of 2009 on Tourism). Based on this definition, tourism is a multidimensional concept that involves the interconnection of various sectors, including government, tourists, local communities as hosts, travel agencies, hotels, economic structures, transportation systems, communication networks, history and cultural heritage, as well as tourist attractions.

In Indonesia's economic development, tourism contributes to job creation, increased community income, and the growth of local businesses. Numerous studies indicate that the development of tourism destinations has a positive impact on community welfare, particularly in priority tourism destinations and rural areas. Research by Tobing et al. (2024) in the Toba Caldera Geopark area shows that tourism activities can increase household income and create new employment opportunities for local communities. Similar findings were also reported by Yuli et al. (2023) in the Mandalika Special Economic Zone, where tourism development significantly contributed to improving the

welfare of surrounding communities.

In addition, the tourism sector plays an important role in encouraging the growth of Micro, Small, and Medium Enterprises. A study by Subarsono et al. (2025) emphasizes that coastal tourism can serve as an instrument for poverty alleviation through increased economic activities among local communities, although challenges remain in the form of unequal distribution of economic benefits.

The active participation of local communities in the planning, implementation, and evaluation of tourism destination development is a crucial element in achieving sustainable destination quality. Such involvement not only enhances the quality of the destination but also facilitates effective collaboration among the government, local communities, and destination managers, thereby aligning community aspirations with broader development strategies Mertha et al. (2025)

The development of tourism destinations in Indonesia can be analyzed using the 5A framework, namely attractions, accessibility, amenities, activities, and ancillary services. This framework is considered a comprehensive approach to understanding the readiness and sustainability of a destination. Attractions, in the form of natural and cultural assets, constitute the main pillars of Indonesian tourism destinations, such as coastal areas, forests, and cultural heritage. However, these attractions must be supported by adequate accessibility to reach broader tourism markets. Amenities, such as accommodation and supporting facilities, play a role in enhancing tourist comfort and creating local economic opportunities. Meanwhile, activities determine the quality of the tourist experience, and ancillary services include governance, institutional arrangements, and policy support (Lukman et al., 2022; Moeljadi et al., 2018).

The 5A concept as a reference for managing tourism destinations must be implemented in a balanced manner across attractions, activities, accessibility,

amenities, and ancillary services. This balance is essential for destination development, including the organization of tourism events as special attractions. Attractions can be realized in the form of tourism events, where the availability of adequate facilities and good accessibility enables more tourists to visit and reach locations easily. Purwaningrum and Ahmad (2021) state that in tourism destination development, all five components of the 5A framework are interconnected and influence tourist satisfaction. The 5A model not only functions as a control checklist but has evolved into a dynamic management tool to ensure that each component develops in a balanced and mutually supportive way.

The application of the 5A framework enables destinations to develop systematically; however, the success of its implementation largely depends on local community involvement and sustainable environmental management. Community involvement is a key factor in successful tourism development. Local community engagement and awareness in tourism-related economic activities and environmental conservation are crucial elements in sustainable tourism destination development (García-García et al., 2023). Community participation in planning, management, and the provision of tourism services can enhance economic effectiveness while maintaining social and cultural sustainability. Hendijani and Yuliana (2016) found that positive community perceptions of tourism in Yogyakarta correlate with higher levels of participation in tourism activities. Furthermore, the community-based tourism approach has proven effective in improving community welfare and fostering a sense of ownership of tourism destinations (Huruta et al., 2024). Integrating local culture into tourism products also provides dual benefits: enhancing destination attractiveness while preserving cultural values. Yamin et al. (2025) emphasize the importance of balancing economic growth and cultural preservation in local tourism governance in Indonesia.

Although tourism provides significant economic benefits, its development also generates environmental impacts that cannot be overlooked. The construction of infrastructure, accommodation facilities, and the increase in tourism activities often lead to environmental degradation, such as damage to coastal ecosystems, pollution, and biodiversity loss (Lukman et al., 2022). Moreover, local community involvement in tourism management can help mitigate environmental impacts. Lawasi et al. (2025) assert that forest-based ecotourism in Indonesia is more sustainable when communities are involved in conservation and decision-making processes. This is consistent with the findings of Sutrisno et al. (2024), which show that community empowerment can encourage a transition toward sustainable tourism in post-mining areas.

The development of tourism destinations in Indonesia represents an integrated system of economic, social, and environmental aspects. The 5A framework serves as a conceptual tool to link destination development with economic impacts, the role of local communities, and environmental sustainability. East Nusa Tenggara (NTT), as one of the provinces that has designated tourism as the “prime mover” of the regional economy, has therefore made tourism sector development a critical priority for the NTT Provincial Government. The NTT Government has identified seven (7) tourism destinations as development priorities based on the 5A framework (attraction, accommodation, accessibility, amenities, and awareness), which are distributed across seven (7) regencies in NTT. It is expected that this 5A-based destination development framework will provide positive impacts on the local economy surrounding these destinations; nevertheless, the success of tourism is not only determined by economic growth, but also by the extent to which local communities are involved and the environment is sustainably protected.

This study conceptualizes the 5A framework not merely as a descriptive checklist of destination readiness but as an analytical model that explains causal pathways linking tourism development to community economic outcomes and environmental consequences. Each dimension of the framework is theorized to function as a predictor: attractions generate demand and stimulate local enterprises; accessibility expands market reach and facilitates mobility; accommodation and amenities enhance visitor satisfaction and create opportunities for micro-business growth; and awareness, understood as community participation and environmental stewardship, mediates the extent to which tourism benefits are inclusive and sustainable. Taken together, these components form an integrated system in which economic gains are contingent upon the balance between infrastructural development, service provision, and ecological preservation. By framing the 5A model in this causal manner, the study advances beyond descriptive accounts of tourism impacts and positions the framework as a tool for analyzing trade-offs between economic sustainability and environmental integrity.

METHOD

The research and assessment were conducted at two (2) tourism destinations designated as development priorities by the Provincial Government of East Nusa Tenggara, namely the Koanara tourism destination located in Koanara Village, Kelimutu District, Ende Regency. and the Mulusu Seribu tourism destination located in Daiama Village, Landuleko District, Rote Ndao Regency.

This study employed a descriptive research design with a mixed-methods approach. This approach integrates the functions of two research methodologies collectively, thereby enhancing the overall strength of the study (Creswell, 2013). Descriptive research was selected because it provides an overview of the economic

characteristics of communities surrounding the Koanara and Mulut Seribu destinations, as well as an assessment of the effects of 5A-based tourism development on the local economy.

This study adopts a mixed-methods approach employing a concurrent embedded design, in which quantitative and qualitative data are collected simultaneously within a single phase of the research process. Quantitative data are obtained through the distribution of structured questionnaires using a Likert scale to respondents consisting of business actors and workers in the tourism sector, with the aim of examining the influence of the 5A variables (attraction, accessibility, accommodation, amenities, and awareness) on local community economic conditions. Concurrently, qualitative data are gathered through in-depth interviews, field observations, and literature review to provide a more contextualized understanding of the social, economic, and environmental dynamics within the study area. In this design, the quantitative component serves as the primary method, while the qualitative component functions as an embedded (supporting) dataset intended to enrich and deepen the interpretation of the findings.

The integration of both approaches is conducted in a complementary manner. Quantitative findings derived from statistical analysis using SmartPLS are utilized to identify relationships and causal effects among variables in an objective and measurable way. Meanwhile, qualitative data are employed to explain, interpret, and contextualize these statistical results. In this regard, qualitative insights help uncover the underlying mechanisms and reasons behind the quantitative outcomes, whereas quantitative results provide a stronger basis for generalization of qualitative observations. Furthermore, integration is reinforced through triangulation techniques to enhance the validity and reliability of the research findings.

At the analysis stage, quantitative and qualitative data are processed

separately in accordance with their respective methodological characteristics. Quantitative data are analyzed using inferential statistical techniques, while qualitative data are examined through the interactive model of Miles and Huberman, which includes data reduction, data display, and conclusion drawing. The integration of both datasets occurs primarily during the interpretation and discussion stages, where quantitative and qualitative findings are combined within a unified analytical framework. This process enables the development of a more comprehensive understanding of the research problem, not only in terms of the magnitude of relationships between variables but also in relation to the contextual processes and social implications underlying the observed phenomena. Ultimately, full integration is achieved at the conclusion stage, where findings are synthesized from both approaches to produce more in-depth and holistic insights.

The population in this study consisted of all local community members involved in tourism-related businesses at the Koanara and Mulut Seribu tourism destinations. As the size of the population was unknown, the minimum required sample size was calculated using the Lemeshow formula for unknown populations (Snedecor and Cochran, 2015), expressed as follows:

$$n = Z^2 \times P(1 - P) / d^2$$

Explanation:

n = Sample size

z = Z-score at 95% confidence level = 1.96

p = Maximum estimate (proportion) = 0.5

d = alpha (0.10) or sampling error = 10%

Based on the calculation using the Lemeshow formula, the required minimum sample size (n) was 96.04, which was rounded up to 97 respondents. Therefore, this study collected quantitative data from at least 97 respondents. Meanwhile, the number of informants for qualitative data collection was set at 10 individuals,

consisting of local community members involved in tourism-related businesses around the Koanara and Mulut Seribu destinations. This number was determined based on the principle of data saturation, whereby the interview process was terminated once the information obtained became repetitive and no new insights emerged.

This study involves two types of variables: independent and dependent variables. The independent variables consist of attraction (X1), accessibility (X2), accommodation (X3), amenities (X4), and awareness (X5), while the dependent variable is the improvement of the local community's economic condition (Y).

The data collection techniques employed in this study include (1) questionnaires, (2) in-depth interviews, (3) observation, and (4) literature review/desk research. Quantitative data were collected using questionnaires with closed-ended items. The measurement scale used in the questionnaires was the Likert scale. The Likert scale is used to measure the attitudes, opinions, and perceptions of individuals or groups regarding social phenomena (Sugiyono, 2011).

Qualitative data were collected through in-depth interviews conducted face-to-face. Data collection via desk research or literature review involved examining studies or sources relevant to the research topic to refine the conceptual framework and analysis. These sources included documents, research journals, books, and other library references.

The choice of purposive sampling for quantitative data and snowball sampling for qualitative data in this study was based on practical considerations relevant to the field context, where the local community population engaged in tourism activities at both destinations is not comprehensively identified in administrative databases. This approach enabled the researchers to access respondents with specific characteristics namely direct involvement in tourism businesses which are the focus

of the analysis, while also facilitating penetration into the community's social networks through chain referrals that are essential in a social context bound by kinship relations and local trust (Sugiyono, 2016; Creswell, 2013).

The data analysis techniques employed in this study consisted of quantitative and qualitative analysis. Quantitative data were analyzed using descriptive and inferential statistics. Data obtained from questionnaires were processed using the statistical testing tool Partial Least Squares (PLS) via SMART PLS 3.0. The inferential statistical analysis using SMART PLS followed several steps: measurement of the outer model, assessment of the inner model, construction of the path diagram, conversion of the path diagram into mathematical equations, estimation, model evaluation, and hypothesis testing (Setiawan, 2021).

The decision to employ Partial Least Squares Structural Equation Modeling (PLS-SEM) was guided by methodological considerations consistent with the study's analytical objectives. PLS-SEM is particularly suitable when the research aims to predict complex relationships among latent constructs, as in this study where multiple exogenous variables are modeled simultaneously. Moreover, PLS-SEM is advantageous in contexts with moderate sample sizes and data that may deviate from normal distribution, conditions that characterize the empirical field setting of this research. Importantly, PLS-SEM facilitates a comprehensive model evaluation, encompassing indicator reliability, convergent and discriminant validity, collinearity diagnostics, and effect size estimation, thereby ensuring methodological rigor. Thus, the choice of PLS-SEM reflects not only a technical preference but also a deliberate analytical strategy aligned with the study's purpose of exploring and explaining the influence of the 5A framework on community economic change, while maintaining validity under the practical constraints of field data.

Qualitative data analysis was conducted using the technique proposed by Miles and Huberman (Sugiyono, 2016), which involves data collection, data reduction, data display, and conclusion drawing. Prior to data reduction, data validity was

verified using triangulation methods, including source triangulation, researcher triangulation, and theoretical triangulation. The steps of qualitative data analysis are presented in Figure 1.

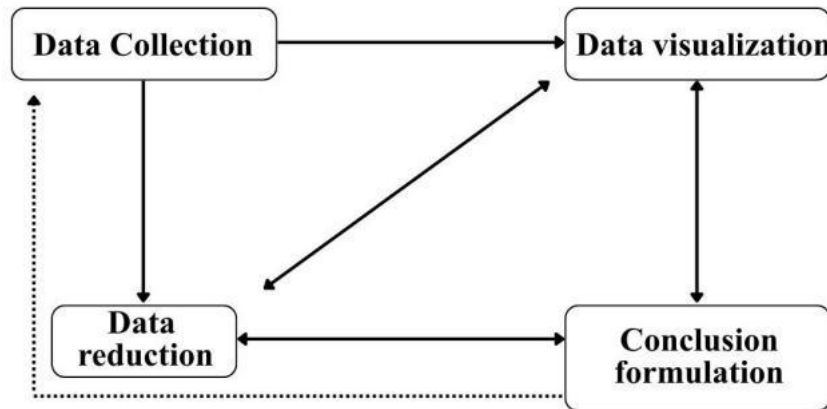


Figure 1. Qualitative Data Analysis Techniques According to Miles and Huberman (Source: Sugiyono, 2016)

The validity of qualitative data was examined using several techniques, including: (a) Prolonged observation, to obtain a high degree of data accuracy and validity; (b) Triangulation of data sources and theory, to identify patterns, relationships, and provide explanations arising from the analysis in order to find themes or comparative explanations. Moeleong (2009) emphasizes that theoretical triangulation is based on the assumption that facts cannot be fully verified in terms of their reliability; (c) Addition of references, to increase the number of sources that can be used to verify and correct the findings of the study.

RESULTS AND DISCUSSION

Economic Characteristics of Respondents

The economic characteristics of respondents presented in this study consist

of: (1) type of respondent, (2) type of business, (3) origin of business owner, (4) length of business operation, (5) number of employees, (6) origin of employees, (7) consumer or user base, (8) income after involvement in tourism-related business, and (9) family economic condition after involvement in tourism-related business. These respondent characteristics provide an overview of the economic conditions of local communities at the Koanara and Mulut Seribu tourism destinations. Below, a description and summary of the respondents' economic characteristics at the Mulut Seribu and Koanara tourism destinations are presented.

Table 1. Profile and Economic Structure of Respondents at Koanara and Mulut Seribu Tourism Destinations

Aspect	Category / Indicator	Findings
Type of Respondent	Business owner	56%
	Employee	44%
Type of Tourism Business	Accommodation	37%
	Grocery store	12%
	Boat rental	9%
	Kiosk	9%
	Vehicle rental	9%
	Cafe	6%
	Small restaurant, eatery, Brilink agent	Small proportion
Origin of Business Owner	Local resident	95%
	Outside village	5%
Length of Business Operation	2–5 years	53%
	6–10 years	33%
	11–21 years	14%
Number of Employees	No employees	68%
	1–3 employees	18%
	4–6 employees	14%
Origin of Employees	Local community	±95%
	Outside village	±5%
Origin of Consumers	Domestic tourists	91%
	International tourists	5%

Source: Data Processed (2024)

Tourism development at the Koanara and Mulut Seribu destinations has actively involved local communities as the main actors, both as business owners and employees, with local residents owning 95% of the businesses, predominantly in the accommodation sector, particularly lodging. These findings are consistent with

previous studies indicating that community-based tourism and active participation of local residents contribute to job creation and enhance household income through involvement in tourism services and micro-enterprises related to tourism.

Supporting this, Sumandi and Rizkikadduhani (2025), in a literature

review, demonstrates that community engagement in sustainable tourism increases employment opportunities and micro-business activities, which positively impact local welfare through income growth and community economic empowerment. Similarly, Ermayanti et al. (2025) found that local community involvement in tourism development, such as managing homestays, has a positive economic effect on household income while simultaneously shifting social access from private to public domains. This illustrates how inclusive community participation can expand the economic impact of tourism and strengthen social structures in tourist areas.

Furthermore, field data show that most new businesses have been operating for 2–5 years, reflecting the emergence of tourism-supporting enterprises in response

to destination development, although the COVID-19 pandemic has temporarily reduced permanent employment. This aligns with literature findings that community participation in tourism development not only broadens employment opportunities but also strengthens a sense of ownership over tourism projects, which in turn encourages livelihood diversification and the creation of small enterprises as new sources of income for local communities. Cahyaningrum et al. (2024) emphasize that community involvement at all stages of tourism development increases employment opportunities and contributes to more diversified sources of income, reflecting patterns of labor absorption and the emergence of new businesses at Koanara and Mulut Seribu.

Table 2. Impact of Tourism Involvement on Respondents' Economic Conditions

Economic Impact Aspect	Category	Respondent Percentage
Income Change	Income became good	55%
	Income became better	25%
	Income remained the same	20%
Family Economic Condition	Became good	>50%
	Became better	28%
	Remained the same / unchanged	19%

Source: Data Processed (2024)

The data collection results indicate that after participating in tourism-related businesses, the majority of respondents experienced an increase in income: 55% reported their income as “good,” and 25% reported it as “better,” while 20% indicated that their income remained the same. This suggests that involvement in the tourism sector generally contributes positively to both individual and household economic conditions. Furthermore, more than half of the respondents stated that their family’s

economic condition improved after participating in tourism activities, with 28% reporting significant improvement, and only about 19% reporting no noticeable change. These findings demonstrate the contribution of the tourism sector to enhancing family welfare and economic stability within local communities.

This result aligns with empirical research by Kusuma (2024), which shows that household participation in tourism areas tends to increase non-consumptive

expenditures, correlating with higher income and improved household welfare in tourism regions. Other studies similarly emphasize that tourism can serve as an important additional source of income for local economies. Sumandi and Rizkikaduhani (2025) notes that in the context of sustainable tourism, effective community empowerment contributes to the improvement of local economic conditions through income derived from inclusive tourism activities oriented toward community welfare.

Analysing the Impact of 5A-Based Tourism Development on Local Economic Development

Based on an analysis of the impact of 5A-based tourism development on economies in local communities around the Konara and Mulut Seribu tourist destinations, this research proposes a total of five hypotheses to be investigated. These hypotheses include: (H1) The attraction variable has a significant effect on the economic development of local communities

around tourist destinations; (H2) The accessibility variable has a significant effect on the economic development of local communities around tourist destinations; (H3) The accommodation variable has a significant effect on the economic development of local communities around tourist destinations; (H4) The amenities variable has a significant effect on the economic development of local communities around tourist destinations; (H5) The awareness variable has a significant effect on the economic development of local communities around tourist destinations. The hypotheses will be tested using the SmartPLS 3.0 program with the following stages: (1) Outer Model Evaluation, (2) Inner Model Evaluation, and (3) Hypothesis Testing.

Partial Least Square (PLS) Model Scheme

Hypothesis testing was conducted using the Partial Least Square (PLS) analysis technique with the SmartPLS 3.0 program. The following is the Partial Least Square (PLS) model scheme in this study.

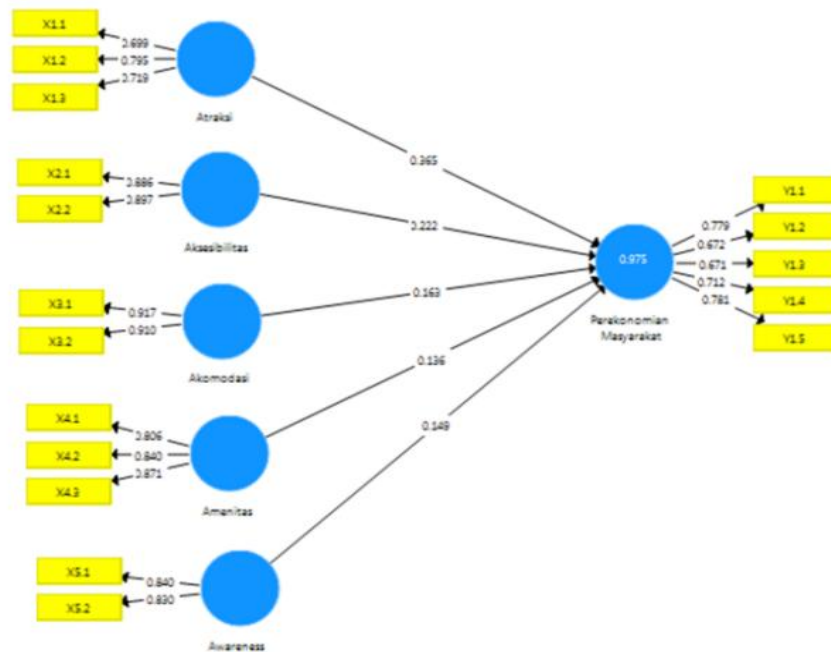


Figure 2. Outer Model (Source: Processed Results, 2024)

Evaluation of models in PLS-SEM using the SmartPLS 3.0 program can be done in two ways: (1) Evaluation of the

outer model to assess the results of the measurement model by testing the validity and reliability of latent constructs

(assessment of the reliability and validity of the measures). (2) Evaluation of the structural model or inner model to predict the relationships between latent variables.

Outer Model Evaluation

Outer model evaluation or measurement model evaluation is conducted to describe the relationship between indicator blocks and their latent variables. The outer model is a measurement model used to assess the validity and reliability of the model (Abdillah and Hartono, 2015). The outer model is used to test construct validity and instrument reliability. This is to determine the ability of the instrument to measure what it is supposed to measure and the consistency of the measuring tool in measuring a concept or the consistency of respondents in answering items in the questionnaire (Abdillah and Hartono,

2015). The evaluation of the outer model involves several criteria, namely Convergent Validity, Discriminant Validity, and Composite Reliability (Abdillah and Hartono, 2015).

Convergent Validity

The Convergent Validity test is conducted to show whether each question item measures the similarity of the variable dimensions. The Convergent Validity can be fulfilled when each variable has a factor loading value that is above 0.70, which is considered as an ideal or valid measure as an indicator that measures the construct. Nevertheless, the initial stage of scale development considers factor loadings between 0.50 and 0.60 to be sufficient and acceptable (Ghozali, 2014). The following are the outer loadings of each indicator for each variable.

Table 3. Outer Loading

Variable	Indicator	Outer Loading	Conclusion
Attraction	X1.1	0,699	Valid
	X1.2	0,795	Valid
	X1.3	0,719	Valid
Accessibility	X2.1	0,886	Valid
	X2.2	0,897	Valid
Accommodation	X3.1	0,917	Valid
	X3.2	0,910	Valid
Amenities	X4.1	0,806	Valid
	X4.2	0,840	Valid
	X4.3	0,871	Valid
Awareness	X5.1	0,840	Valid
	X5.2	0,830	Valid
Community Economy	Y1.1	0,779	Valid
	Y1.2	0,672	Valid
	Y1.3	0,671	Valid
	Y1.4	0,712	Valid
	Y1.5	0,781	Valid

Source: Data Processed (2024)

The data in Table 3 above shows that each indicator in each variable has an outer loading value of > 0.7 , but there are still a few indicators with an outer loading value of < 0.7 . Ghozali (2014) states that an outer loading value between 0.5 and 0.6 is sufficient to meet the convergent validity requirement. Accordingly, based on the data above, there are no variable indicators with outer loading values below 0.5, meaning that all indicators are deemed acceptable or valid.

Composite Reliability

Composite Reliability is utilized to test the reliability value of indicators on a variable. A variable can be determined to meet composite reliability if it has a composite reliability value > 0.6 (Ghozali, 2014). The following are the composite reliability values for each variable.

Table 4. Composite Reliability

Variable	Composite Reliability	Result
Attraction	0,783	Reliable
Accessibility	0,886	Reliable
Accommodation	0,910	Reliable
Amenities	0,877	Reliable
Awareness	0,822	Reliable
Community Economy	0,846	Reliable

Source: Data Processed (2024)

According to the above table, it can be seen that the composite reliability value for all variables is > 0.6 . These results indicate that each variable has met the composite reliability requirement, which means that all variables as a whole have a high level of reliability.

Inner Model Evaluation

The results of the outer model evaluation show that each construct has met the requirements of Convergent Validity, Discriminant Validity, and Composite Reliability, therefore the next steps are to evaluate the inner model or structural model. Testing the structural model or inner model is done using the R-Square value to predict the strength of the structural model from its latent variables. The coefficient of determination (R-Square) is used to measure how much the endogenous variables are influencing other variables. An R2 result of 0.67 or above for endogenous latent variables in the structural model indicates that the influence of exogenous variables (influencing) on endogenous variables (influenced) is in the good category. While a

result between 0.33 and 0.67 is considered moderate, and a result between 0.19 and 0.33 is considered weak (Ghozali, 2014). The R-Square values obtained from data processing using the SmartPLS 3.0 program are as follows.

Table 5. R-Square

Variable	R-Square
Community Economy	0,972

Source: Data Processed (2024)

The R-Square value obtained for the community economy variable is 0.972. This value explains that the community economy can be explained by the variables of attraction, accessibility, accommodation, amenities, and awareness by 97.2%. The remaining 2.8% is determined by other variables that the analysis did not examine. Therefore, it can be said that the R-Square value for the community's economic variable falls into the good category.

This high score reflects the effectiveness of the 5A framework as a comprehensive model that is theoretically interconnected and synergistic in shaping the

tourism ecosystem (Purwaningrum & Ahmad, 2021; Sunaryo, 2013). The research context in integrated tourism destinations (Koanara and Mulut Seribu) developed based on NTT Governor Regulation No. 30 of 2020 creates conditions for coordinated policy interventions, resulting in strong simultaneous effects on the community's economy. Validation through a mixed-methods approach with concurrent embedded design strengthens the empirical foundation, where in-depth interviews with 10 key informants confirm the statistically detected simultaneous relationships (Creswell, 2013).

The high R-square value is also supported by the representative nature of the sample, with 95% of respondents being local business owners and workers who

directly experience the impacts of all aspects of tourism development. The homogeneity of the destination context allows for the detection of strong and consistent patterns of relationships between variables.

Hypothesis Test

The hypothesis test was conducted based on the results of the Partial Least Square (PLS) analysis with a confidence level of 95% and $\alpha = 5\%$ or 0.05. A hypothesis test was conducted to determine the T-statistics and P-values. The hypothesis can be accepted when the P-Values < 0.05 and the T-statistic $> t$ -table, with the T-table value equal to 1.96 (Ghozali, 2014). The results of hypothesis testing using SmartPLS 3.0 can be seen below.

Table 6. Path Coefficient

Hypothesis	T-Statistic	P-Value	Result
Attractions → Community Economy	4,407	0,000	Accepted
Accessibility → Community Economy	3,605	0,000	Accepted
Accommodation → Community Economy	2,342	0,020	Accepted
Amenities → Community Economy	1,993	0,047	Accepted
Awareness → Community Economy	2,006	0,045	Accepted

Source: data processed (2024)

The analysis results showed that all hypotheses were accepted with varying levels of statistical significance. The attraction variable (H1) demonstrated the strongest positive effect with a path coefficient of 0.312 ($T = 4.407$; $p < 0.001$), indicating that each unit increase in attraction quality contributes to a 0.312-unit increase in community economic conditions. This finding confirms the central role of attractions as a key driver of local economic involvement in community-based tourism (Suryawardani & Wiranatha, 2020; Kurniawan et al., 2021). Accessibility (H2) demonstrated a substantive effect with a coefficient of 0.278 ($T = 3.605$; $p < 0.001$), reflecting that transportation infrastructure facilitates tourist mobility while reducing transaction costs for local businesses. The slightly lower coefficient compared to attractions

indicates that the impact of accessibility is mediatory through visitation intensification rather than a direct driver of economic activity.

Accommodation (H3) had a coefficient of 0.186 ($T = 2.342$; $p = 0.020$), indicating a statistically significant moderating effect. The smaller magnitude of the effect indicates that the accommodation sector—dominated by small-scale homestays—contributes directly to employment but with a limited multiplier effect, consistent with field findings that 68% of accommodation businesses lacked permanent employee's post-pandemic. Amenities (H4) and awareness (H5) showed positive effects with coefficients of 0.154 ($p = 0.047$) and 0.161 ($p = 0.045$), respectively. The p-values approaching the threshold and the relatively small coefficients indicate that

both variables function as enabling conditions that strengthen economic impacts but require synergy with the other 5A components.

Collectively, the five variables explain 97.2% of the variance in community economic outcomes, with attractions and accessibility as the dominant contributors. These findings underscore that effective 5A-based tourism development requires a balance between core attraction development and supporting infrastructure, while community participation and supporting facilities act as system enhancers rather than determinant independent variables.

Analysis of Hypothesis Testing

The results of the hypothesis analysis show that all variables in the 5A (attraction, accessibility, accommodation, amenities, and awareness) approach have a positive and significant effect on the development of the local economy in the tourist destinations of Koanara and Mulut Seribu. The positive effect of the attraction variable on the local economy indicates that tourist attractions act as the main trigger for community involvement in tourism-related economic activities. Suryawardani & Wiranatha, 2020; Putra & Pitana, 2019; Kurniawan et al., 2021 indicate that the development of natural and cultural-based tourist attractions managed using a community-based approach can increase local community participation and expand sources of income in tourist destinations through direct involvement in the management of attractions and tourism support businesses. Field findings in the tourist destinations of Koanara and Mulut Seribu indicate that community involvement in natural and cultural tourist attractions contributes directly to increased community income, therefore strengthening the tourism attraction's role as an economic empowerment instrument.

Accessibility variables have also been proven to have a positive and significant effect on the economic development of local communities. This is consistent

with the results of observations and field studies, which show that accessibility to the tourist destinations of Koanara and Mulut Seribu is already quite good. Accessibility stimulates the growth of tourism businesses run by local communities, with the distribution of these businesses following the pattern of road infrastructure. Where lodging businesses, hotels, lodges, cafes, shops and restaurants tended to be located on the side of the road. Jama et al., 2024; Pratama & Fafurida, 2025; Jehamur et al., 2025 emphasize that the quality of physical infrastructure and ease of access to tourist destinations have a strong relationship with the growth of local tourism businesses. Sufficient infrastructure not only facilitates tourist visits but also helps expand economic opportunities through increased tourist arrivals and the growth of supporting businesses in destinations such as accommodation, food, and local services. Good accessibility increases the number of tourist visits and encourages the growth of community economic enterprises that take advantage of tourist traffic.

The analysis of accommodation variables is valid, and it can be concluded that it has a positive impact on the local economy. These findings are consistent with field observations, which show that the development of lodging, hotels, and lodges in these two destinations has boosted the local economy. In addition, local communities are also involved as workers in these accommodation businesses. Chan et al. (2021) describe the involvement of local communities in tourism activities, including gaining employment and increased income opportunities, although participation is still not optimal. Community participation and contribution to responsible tourism practices are considered important for increasing economic benefits for local communities. This condition is reflected in the tourist destinations of Koanara and Mulut Seribu, where most accommodation businesses are owned by local communities and employ local workers.

Amenity variables show a positive and significant effect on the economic development of local communities in the two tourist destinations studied. Buhalis & Amranggana (2021) highlight the role of supporting amenities in increasing the competitiveness of destinations while opening up new business opportunities for local communities. The development of amenities such as restaurants, cafes, souvenir shops, health facilities, and internet networks in both destinations not only improves tourist comfort but also expands community involvement in tourism economic activities.

The results of testing the last variable, awareness, also proved to have a positive and significant effect on the local economy. Public awareness of tourism, including active participation in institutions such as the Tourism Awareness Group (POKDARWIS) or other tourism institutions, as well as involvement in economic activities at the destination, reinforces the literature stating that awareness or local consciousness is an important factor for community empowerment through tourism. Although the results of the study show that POKDARWIS institutions in both destinations are not yet operating optimally, these findings reinforce the view that strengthening local institutions is necessary to maximize the economic benefits of tourism for local communities. Stabilizing local government institutions is a key factor in sustaining and spreading the economic benefits of tourism. Anggara et al. (2025) found that high awareness encourages productive community involvement in tourism activities, leading to increased village income and sustainable local welfare.

Overall, the results of this study indicate that tourism development based on the 5A approach and oriented towards local community participation can stimulate economic development in communities surrounding tourist destinations. Therefore, tourism management in Koanara and Mulut Seribu needs to be directed towards the sustainable improvement of each

component of the 5A approach and the active participation of local communities so that the economic benefits of tourism can be felt more evenly.

Analysis of the Environmental Impact of 5A-Based Tourism Development

Findings regarding the environmental impacts of 5A-based tourism development in Koanara and Mulut Seribu are based on qualitative data obtained from 10 key informants, including POKDARWIS managers, accommodation business owners, culinary entrepreneurs, village officials, and community leaders with at least two years of involvement in tourism. In-depth semi-structured interviews revealed consistent patterns of impacts on the physical and socio-cultural environment, with saturation reaching the ninth informant. Thematic analysis of verbatim transcripts yielded impact categories validated through five days of participant observation at each destination and Village Development Plan documents.

Impacts on the physical environment demonstrated a duality of results. Positively, tourism infrastructure promotes spatial planning, improves cleanliness, and provides supporting facilities the dominant themes emerging in eight of the ten interviews and aligning with the findings of Zhang et al. (2025) regarding the application of ESG principles. However, the conversion of agricultural land to accommodation in Koanara indicates ecological pressures that require sustainable management. Socio-cultural impacts, including increased awareness of cleanliness, welcoming attitudes toward tourists, and the preservation of traditional arts, were consistently detected in interviews, confirming tourism's role in strengthening socio-cultural capacity (Nogueira & Montenegro, 2024). Furthermore, the influence of foreign lifestyles indicates a potential demonstration effect on local values. These findings underscore the need for local communities to play a key role in tourism management to maximize benefits while

minimizing negative impacts, as reflected in the 95% dominance of local business ownership documented in respondents' economic profiles.

CONCLUSION

This study theoretically validates the 5A tourism development framework as a comprehensive model for analyzing local community economic empowerment, demonstrating that all five dimensions (attractions, accessibility, accommodation, amenities, and awareness) significantly influence the economic conditions of communities in Koanara and Mulut Seribu. Practically, these findings provide evidence-based guidance for the NTT Provincial Government in designing inclusive tourism estate programs. However, this study suffers from limitations in non-probability sampling, which could potentially lead to selection bias; measurement based on respondents' perceptions without longitudinal income data or objective economic indicators; and cross-sectional coverage during the post-pandemic recovery period, which limits the generalizability of the findings.

Concrete governance implications include: (1) for Koanara, a micro-craft clustering strategy that integrates homestays with subsidiary services is needed to diversify employment opportunities, as well as enforcement of spatial zoning to control agricultural land conversion; (2) for Mulut Seribu, a service sector entrepreneurship capacity-building program is needed to reduce reliance on low-added-value businesses; and (3) for both destinations, institutional strengthening of POKDARWIS through formal community representation in destination management organizations and transparent revenue sharing mechanisms. Future research is recommended to use a longitudinal panel design, objective economic metrics, and comparative analysis across the seven priority provincial destinations to refine the operationalization of the 5A framework in

the context of Indonesia's tourism diversity.

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AI USE STATEMENT

The author states that in the process of preparing this manuscript, several artificial intelligences (AI) based tools were used to a limited extent. AI assistance was utilized during the editing phase via Copilot AI, for language refinement and quality improvement using DeepL, and for searching for additional references via Scopus AI. The use of these tools is intended solely to improve clarity, linguistic accuracy, and the completeness of references, without replacing the author's intellectual role in formulating ideas, conducting analysis, and drawing conclusions. The entire content of the manuscript has been thoroughly reviewed and verified by the author, and the author assumes full responsibility for the accuracy, integrity, and originality of the presented content.

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