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Community Engagement as a Mediator between Land Suitability and Investment in Facilities on Tourism Potential in Huangma Village, China

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ABSTRACT

This study examines the influence of land suitability and investment in facilities on tourism potential, with a particular focus on the mediating role of community engagement. While previous research has explored the impact of environmental and infrastructural factors on tourism development, few studies have examined the interactive effects of community engagement in maximizing these benefits. This study aims to fill this gap by providing empirical evidence from Huangma Village, Jiangxi Province, China. A quantitative research design was adopted, using Partial Least Squares-Structural Equation Modeling (PLS-SEM) in SmartPLS to test the hypothesized relationships. Data were collected from 231 respondents, including local residents, tourism business owners, government officials, and infrastructure developers, through a structured survey questionnaire. The results confirm that land suitability and infrastructure investment significantly enhance tourism potential, with community engagement playing a crucial mediating role. The findings suggest that tourism success depends not only on physical and economic factors but also on active local participation in tourism-related initiatives. This study contributes to the literature by integrating environmental, infrastructural, and social dimensions of tourism development. The findings offer practical insights for policymakers and tourism planners, emphasizing the need for sustainable land management, strategic infrastructure investment, and participatory tourism governance to maximize tourism potential.

Keywords: Land Suitability; Infrastructure Investment; Community Engagement; Tourism Potential; Sustainable Tourism

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1. Introduction

Tourism has for decades been one of the strongest engines of economic growth, cross-cultural exchange, and local progress, particularly in those areas gifted with incredible nature and historical significance. Sustainable development of tourism is dependent on several determinants, including environmental equilibrium, investment in infrastructure, and participation of local communities^[1]. The last decade has witnessed scientific research into tourist potential expand to include geophysical characteristics such as ground stability, since the physical environment was noted to contribute significantly towards a destination's attractiveness and sustainable prosperity^[2]. Investment in tourism infrastructure, such as transportation systems, accommodations, and leisure facilities has also been studied extensively as a factor determining a destination's competitiveness^[3]. In line with this, contributions of local communities have also garnered significant focus given their participatory role in tourism development, as it enhances cultural exchange, keeps resource management in check, and promotes economic inclusiveness^[4]. Previous research has highlighted the immediate impacts of land suitability and infrastructure investment on tourism development, yet recent research shows that these relationships are subject to contributions of local communities^[5]. While stable conditions on Earth and well-rooted infrastructure can be good for tourism, this is only possible through the participation of local stakeholders in governance, tourist experiences, and cultural transmission^[6]. A number of studies have confirmed the importance of land suitability in shaping tourism potential. Studies show that geophysical conditions like soil quality, resistance to erosion, and seismic activity shape tourism infrastructure construction and visitor safety attitudes^[7, 8]. Destinations that have stable environments, e.g., coastal areas with little chance of erosion hazard or mountain terrain with low susceptibility to landslides, stand higher chances of being invested in tourist facilities^[9]. Land instability has also been identified through research as having a decreased ability to make tourism appealing because natural hazards subject both tourists and firms engaged in the tourism sectors to threats^[10]. Contrarily, areas that adopt geotechnical stabilization and sustainable land management have effectively boosted their tourism attraction and long-term visitor stay^[11].

Infrastructure and facility investment is another widely

established determinant of tourism development. Empirical studies have established that transport networks, advanced accommodations, and recreational facilities greatly enhance tourist satisfaction and destination competitiveness^[12]. For instance, Gupta^[13] established that developed road networks and airports enhance accessibility, making far-flung tourist destinations more feasible. In addition, studies point out that the availability of good-quality facilities like hotels, restaurants, and entertainment complexes is directly related to higher tourist arrivals and longer stay lengths^[14]. Further, the importance of community engagement in tourism has also been extensively researched, with studies elaborating on its contribution towards sustainability in tourism as well as tourist experiences. Evidence suggests that active community engagement in tourism management results in improved cultural heritage, natural environment, and genuine visitor interactions^[15]. Community-based tourism frameworks have been proven to increase economic gains for residents while minimizing social conflict between residents and tourists^[16]. In spite of all the research carried out on tourism development, a number of gaps remain in literature. To start with, while research has considered the direct influence of land suitability and infrastructure investment on tourism potential, few have investigated how they interact with community engagement as a mediating variable^[17, 18]. Most studies examine either environmental determinants or infrastructure investments but neglect the contribution of social dynamics to tourism success^[19]. Bridging this gap is important for developing an understanding of the overall mechanisms driving tourism development, especially in destinations where local involvement affects the sustainability of tourism development in the long run^[20]. The second gap in empirical studies concerns the spatial scope of previous studies. The majority of the literature on tourism potential is concerned with urban or highly developed tourism destinations, and fewer studies scrutinize rural and newly emerging tourism areas where land suitability, infrastructure limits, and community engagement dynamics are dissimilar^[21]. While existing literature highlights the role of community participation in tourism development, it tends to consider this factor in a unidimensional manner instead of investigating its potential mediating role. This research seeks to bridge that gap by considering how community participation shapes the relationship between land suitability, facility investment, and tourism potential.

The primary research question explores how land suitability and investment in facilities influence tourism potential, and more specifically, how community engagement mediates this relationship. It investigates whether and how the active participation of local stakeholders enhances the effectiveness of physical and infrastructural inputs in promoting tourism development.

In particular, the study aims to test the direct impacts of land suitability and facility investment on tourism potential, and examine the direct effect of community involvement on tourism outcomes. More critically, it investigates the mediating effect of community participation between land suitability and tourism potential, and between facility investment and tourism potential. By placing community participation as a mediating variable at its core, this research presents a new way of conceptualizing how community-based initiatives and community participation can augment the role of physical and infrastructural variables in influencing tourism development. This unified perspective presents a more holistic approach to tourism planning, where community participation is not merely a complementary factor but a catalyst for achieving tourism potential. The originality of this study lies in its integration of three dimensions: environmental (land suitability), infrastructural (facility investment), and social (community engagement) within a single analytical model. It addresses a critical gap in tourism research: while environmental and infrastructure factors have been studied extensively, the mediating role of community engagement has received limited empirical attention, particularly in rural Chinese contexts like Huangma Village. This study provides fresh insights into how community participation can amplify the benefits of otherwise static investments.

The findings of this study are highly relevant to policymakers, tourism planners, and local stakeholders. Awareness of the effects of land suitability and infrastructure investment on tourism potential can inform sustainable tourism planning to ensure tourism development is consistent with environmental limitations and economic requirements^[22]. In addition, the debate of the mediating role of local participation offers important insights into how local people's participation can promote more sustainable tourism through inclusive economic development and social cohesion^[23]. The research also advances theory in tourism development by synthesizing environmental, infrastructure, and social ele-

ments and offering a more holistic approach to planning and managing tourism^[24]. This paper contributes a nuanced, empirically validated framework that emphasizes community engagement as a pivotal mechanism in converting land and infrastructural advantages into tangible tourism potential. Compared to prior literature that often treats physical and economic inputs in isolation, this study offers a more holistic and dynamic understanding of tourism development. Moreover, the use of PLS-SEM enhances methodological rigor and allows for the analysis of complex interrelationships, making the findings more robust and generalizable.

Land suitability and facility investment are the most significant determinants of regional development, especially in rural areas whose growth is based on optimal utilization of land and infrastructure^[25]. Past research has already underscored the role of land suitability analysis in identifying the most efficient land-use strategies, taking into account soil, topography, climate, and proximity to water resources^[24]. Suitability analysis frequently employs Geographic Information Systems (GIS) and multi-criteria decision-making (MCDM) methods to identify land potential for agricultural, residential, or industrial purposes^[26]. Rural land-use planning in China is strongly related to government policies that seek to balance economic growth with environmental protection^[17, 27].

Investment in infrastructure, such as transportation systems, utilities, and social infrastructure, is essential to increasing economic opportunity and living standards in rural areas^[28]. Research has indicated that greater investment in basic infrastructure is directly linked to local economic growth because enhanced access and services spur business activity, enhance property values, and draw a skilled workforce^[29]. In China, the government has placed significant importance on rural infrastructure investment under programs like the Rural Revitalization Strategy, which targets the upgrading of agricultural facilities, road infrastructure development, and enhancing public services^[30]. Studies have indicated that underinvestment in facilities can slow down economic growth, constrain land productivity, and cause population loss through decreased employment opportunities.

1.1. Land Suitability and Tourism Potential

Empirical research has largely investigated the relationship between land suitability and tourism potential, specif-

ically on the role of geophysical and environmental determinants in shaping the appeal of a destination^[2]. Empirical evidence suggests that favorable land conditions, as indicated by low landslide, erosion, and seismic susceptibility, are critical to guaranteeing tourism development^[7]. These areas with high land suitability facilitate long-term investment in infrastructure, thereby making the tourist sites accessible and safe^[31]. Conversely, unstable land conditions have been linked to higher maintenance demands, destruction of infrastructure, and hazardization, deterring tourist-related activities^[12].

The impact of land suitability on tourist potential is also empirically proven to show the role of terrain security in contributing to visitor satisfaction and destination competitiveness^[32]. Stable terrains enable the establishment of eco-tourism, adventure tourism, and heritage tourism since they create a stable foundation for infrastructural developments such as roads, accommodations, and recreational facilities^[10]. Also, tourism businesses are likely to invest in low geologic risk areas, providing a secure source of income and sustainable long-term business^[14]. Empirical observations further show that stable land areas experience greater tourism inflows due to positive attitudes towards safety and accessibility, lending credence to the fact that land suitability is a key indicator of tourism potential^[33].

Additionally, land stability as well as other tourism facilitation variables like infrastructure and community preparedness is increasingly being noted in the literature of tourism development^[20, 34]. For example, whereas stable land provides a physical basis for tourist development, its total potential remains achieved only when there are infrastructural investments and popular support^[13, 28]. Stable land allows for the establishment of infrastructure such as roads, trails, and accommodation, which are then serviced and advertised through local-based tourism activities^[25]. Evidence from ecotourism development in rural China illustrates how land stability contributes to safe and consistent tourist access but that it is the interplay of local participation and infrastructure planning that results in geographical advantage translating into actual tourism benefits^[26, 35]. This implies that stability of land plays an important role in tourism growth but does so more beneficially when coupled with the active engagement of the population and strategic investment.

H1. *Land suitability has a significant impact on tourism*

potential.

1.2. Investment in Facilities and Tourism Potential

Previous studies have always focused on infrastructure investment as a main stimulant for tourism potential through improved accessibility, tourist experience, and quality of services^[3]. Empirical research reveals that well-developed transport systems, sophisticated accommodations, and recreational facilities are the primary stimulants for tourist attractions and local tourism economies^[4]. Research on tourism infrastructure addresses the aspect that investment in roads, airports, and public utilities directly affects travel convenience that makes a destination more appealing to domestic and overseas tourists^[30]. Moreover, evidence indicates that poor investment in infrastructure limits the capacity of an area to carry tourism, leading to tourist discontentment and reduced economic benefit for communities. The tourism sector, particularly in developing nations, has been affected by massive investments in infrastructures from government and private institutions, deepening the necessity for continuous development to sustain the activity of visitors as well as economic advancement^[36].

Empirical evidence further illustrates how investment in facilities encourages the development of tourism by creating a conducive environment for tourism businesses and services^[13]. Empirical evidence indicates that tourist choices and length of stay are largely determined by whether high-quality hotels, restaurants, and entertainment places are available^[24]. Effectively managed public spaces, digital infrastructure, and heritage conservation initiatives also enhance destination appeal, generating repeat visits and word-of-mouth communication^[5]. Case studies across various tourism economy models reveal that investments in infrastructure not only generate more tourist arrivals but also enhance revenue for local businesses and governments^[21]. It is also critical to consider how infrastructure investment interacts with other contextual variables such as land attributes and community engagement in order to make its impact on tourism^[37]. Research indicates that even large investments in tourist infrastructure come with minimal returns in cases where land is unstable or there is poor community participation^[38]. Infrastructure should be designed to suit the physical

landscape, and functioning usually relies on local community involvement to facilitate local ownership, upkeep, and cultural awareness^[39]. In the case of terrain-sensitive destinations, infrastructure resilience needs to be such that it harmonizes with land conditions, and the fortunes of such investments largely depend on locally driven services such as homestays, guide networks, or conservation initiatives^[40]. These observations strengthen that the investments in facilities alone are not enough unless complemented by the physical aptness of land and the social infrastructure contributed by active communities. Therefore, based on these findings, it is possible to hypothesize as follows.

H2. *Investment in facilities has a significant impact on tourism potential.*

1.3. Community Engagement and Tourism Potential

Considerable research has shown the importance of community engagement in promoting tourism growth, as resident involvement helps to determine tourist experiences and maintain tourism operations^[4]. Research shows that community engagement in planning and management of tourism promotes ownership and responsibility, thus ensuring improved preservation of cultural and natural resources^[5]. Empirical findings indicate that destinations where community engagement is ongoing record increased levels of tourist satisfaction owing to the experience of authentic cultural heritage, local warmth, and original traditions^[16].

Further empirical evidence confirms that community engagement can improve tourism opportunities through inclusive tourist development and selling a destination as having a differentiated identity^[41]. Experience from rural and heritage tourism locations indicates that community engagement in business linked to tourism, for instance, homestays, local crafts, and cultural performances, significantly boosts satisfaction and interaction rates among visitors^[42]. Moreover, research indicates that effective community engagement translates into improved management of resources so that tourism sites are sustainable and negative environmental and cultural effects are reduced^[23]. In addition, the efficacy of community participation in promoting tourism potential is enhanced when it is synergistic with physical and infrastructural development^[43]. For instance, communities that

are located in geographically stable and well-supported areas are more likely to establish solid tourism products that will be attractive to tourists^[44]. Empirical observations stress that local stakeholders are more likely to engage positively when they perceive long-term benefits from tourism, which is most commonly linked to stable land conditions and available infrastructure^[45]. Where stable geography, investment viability, and motivational stakeholders converge, a synergistic effect emerges, improving the attractiveness, sustainability, and competitiveness of tourist destinations^[46]. Thus, community engagement is a direct influencer and a catalytic force that interacts with other enablers in order to enhance tourism potential. It can thus be hypothesized that:

H3. *Community engagement has a significant impact on tourism potential.*

1.4. Community Engagement as Mediator

Empirical evidence has proven that land suitability is central in determining tourism potential, but more recent research highlights that local people's engagement acts as a mediating element in such a connection^[15]. Researchers contend that stable land conditions present favorable conditions for tourism, but the extent to which this potential is actualized relies heavily on the active involvement of local societies^[7]. Sustainable tourism development research points out that community engagement guarantees improved management of land, natural scenery conservation, and environmental tourism practices promotion, which in return improve the attractiveness of stable land for tourism^[47].

Community engagement's mediating function in bridging land suitability and tourism potential is also bolstered by proof of how grassroots participation enhances the advantages of a stable landscape^[1]. Studies indicate that when communities actively participate in tourism decision-making, they adopt land integrity-protecting measures as well as utilizing it for the development of tourism^[14]. Empirical evidence suggests that land suitability by itself is not a determinant of tourism success unless complemented by community-led initiatives like nature tours, eco-tourism lodges, and local institutions that promote responsible land use^[21].

Most importantly, the interrelational dynamics between land stability and community engagement exhibit a co-dependency, whereby neither factor can support tourism by

itself^[13]. Research emphasizes that stable land offers the security and stability required for tourism, while community involvement converts this stability into tourism activities, services, and long-term management^[11]. The mediation process is more productive when communities are enabled through knowledge and skills to sustainably manage land resources as well as create tourism services compatible with environmental conditions^[17]. Therefore, land stability and tourism potential's relationship is not only linear but functionally mediated by local communities' enabling actions and governance. Thus, it can be assumed that:

H4. *Community engagement mediates the relationship between land suitability and tourism potential.*

Studies on tourism infrastructure development have always stressed that investment in facilities improves tourism potential; however, contemporary empirical evidence indicates that local community engagement has a significant mediating role in the relationship^[29]. Earlier research indicates that highly developed infrastructure, such as transportation, hospitality, and recreational facilities, brings tourists, but the success of these investments relies heavily on the active involvement of the local community^[5]. Research in tourism-based economies indicates that where communities are participatory in the use, upkeep, and management of tourist facilities, the returns on infrastructure investments are optimized, resulting in higher visitor satisfaction and repeat visits^[16].

The community engagement mediating role in this relationship is also attested to by research that focuses on the fact that infrastructure is not a guarantee of sustainable tourism development without local participation^[23]. Based on empirical evidence, investment in infrastructure offers the potential for communities to engage in activities related to tourism, with a focus on entrepreneurship and the creation of jobs^[20]. By promoting collaboration among stakeholders, the involvement of the community enhances the long-term sustainable aspects of tourist infrastructure investments, in the end supporting the tourism sector^[20]. Moreover, the relationship between infrastructure and the community is bidirectional and deeply rooted in local society^[25]. Empirical evidence shows that community participation affects the quality and location of facilities developed and quality infrastructure facilitates community-based tourism enterprises through access and exposure^[22, 26]. Infrastructure developed in the

absence of consultation with local communities is found to be non-cultural and operationally non-sustainable, while participatory planning yields more locally valued and adaptive tourism development^[36, 38]. This mutual relationship highlights that community involvement not only mediates but also maximizes the value of investment in facilities by aligning development initiatives with local demands, thus increasing tourism attractiveness and resilience. Therefore, it can be assumed that:

H5. *Community engagement mediates the relationship between investment in facilities and tourism potential.*

1.5. Theoretical Foundation for Research Framework

The herein discussed relationships are founded on Stakeholder Theory and Sustainable Tourism Development Theory, two theories that emphasize the imperative necessity of local community, infrastructure investment, and environmental stability as the drivers of developing tourism development. Stakeholder Theory posits that tourism development is a multi-stakeholder environment in which the local communities, investors, and policymakers collaboratively contribute to the success and sustainability of the tourism destination. This theory supports the argument that investment in infrastructure and land suitability are not enough to guarantee tourism potential unless complemented by active community engagement, which ensures resource sustainability and enhances visitor experience^[36]. Similarly, Sustainable Tourism Development Theory promotes the balance of economic gain, environmental protection, and social equity to achieve long-term tourism sustainability^[4]. This perspective ensures the intervening role of local community engagement in linking infrastructure investment and land suitability to tourist potential because community-based tourism schemes enable control over natural resources responsibly while they invest infrastructure into economic growth^[2]. Empirical evidence further demonstrates that when local communities participate in the management of tourism, they support sustainable destination management, thereby strengthening the relationship between stable land, well-established facilities, and improved tourism attractiveness^[10]. Moreover, the harmony of good-quality infrastructure with peoples' participation at the community level validates the model of

destination competitiveness, whereby physical and social capital render a destination attractive and economy thriving in tourist destinations^[1]. The integrated theoretical foundations for this model of research (**Figure 1**) thus offer a credible explanation of how environmental stability, infrastructure investment, and community engagement converge to define tourism development.

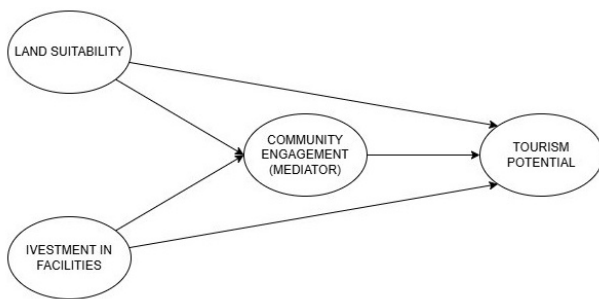


Figure 1. Conceptual Framework.

2. Material and Methods

2.1. Research Design

The present study employs a quantitative research methodology in examining inter-relationships between facility investment, land suitability, community engagement, and tourism potential. A hypothesis-testing approach was adopted, involving structural equation modeling (SEM) to establish causality among variables of the study. The study takes a deductive reasoning approach in developing hypotheses based on theory and empirical work and subsequently tested through statistical procedures. The design is cross-sectional, meaning the data were collected at a single point in time to examine the relationships between the variables.

2.1.1. Population

The stakeholders for the study are inhabitants of Huangma Village, Jiangxi Province, China, participating in tourism development. They include the local villagers, owners and operators of tour businesses, the government, and infrastructure developers participating directly or indirectly in the tourist industry. The population was selected based on its relevance to the study's objectives, as these stakeholders play a significant role in shaping tourism potential through their participation in infrastructure development, land management, and community engagement.

2.1.2. Sample and Sampling Technique

A total of 231 respondents were chosen as a sample for this study using a purposive sampling method. The sampling method was utilized in order to obtain the response of only experienced and knowledgeable respondents towards tourism development. The sample size of 231 respondents was sufficient to perform SEM analysis, as suggested by Hair et al.^[48], who recommend ten observations for every indicator variable as a minimum for strong PLS-SEM analysis. The sampling process was thus targeted at individuals with firsthand experience in activities involving tourism for more precision of responses and applicability.

2.1.3. Data Collection Method

The main data for this research were gathered using a standardized survey questionnaire, constructed from existing scales from literature. The questionnaire was segmented into sections that included demographic details, land suitability, facility investment, engagement of the community, and tourism potential. A five-point Likert scale (1 = strongly disagree to 5 = strongly agree) was applied to assess the constructs. Data collection involved both online and face-to-face survey method to ensure a high response rate and representativeness. Ethical guidelines were strictly adhered to, including confidentiality, informed consent, and voluntary participation. In order to enhance response accuracy, the questionnaire was pre-tested using a sample of 20 participants, and appropriate corrections were made prior to the large-scale data collection.

2.2. Data Analysis

The data gathered were analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM) via SmartPLS software, which is a commonly applied method in testing complex models with mediating variables. The use of PLS-SEM was because it can process small to medium-sized samples, non-normal distribution of data, and formative measurement models. The analysis was undertaken in two stages: (1) Measurement model evaluation, involving a check for reliability, validity, and factor loadings of the constructs employing Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE), and (2) Structural model evaluation, which tested the hypothetical relationships employing path coefficients, R^2 values, and bootstrapping meth-

ods for significance levels. The mediation effects of community engagement were tested with indirect effect analysis and variance accounted for (VAF) method. The model fit indices, such as the standardized root mean square residual (SRMR), were also checked to confirm model adequacy. The stringent analytical method ensured the findings' robustness and provided strong empirical evidence supporting the hypothesized relationships.

3. Results

Table 1 presents Cronbach's alpha (CA), composite reliability (CR), and average variance extracted (AVE) for each construct, ensuring the reliability and validity of the measurement model. Cronbach's alpha ranges between 0.816 and 0.918, which is above the suggested value of 0.7, and it claims superb internal consistency. Similarly, composite reliability values are above 0.8, ensuring each construct has superb internal reliability. AVE values for all the variables are above 0.5, which establishes excellent convergent validity. Interestingly, facilities investment (AVE = 0.710) and land suitability (AVE = 0.754) reveal exceptionally high variance extraction, which indicates that these constructs are very good at measuring their respective dimensions. These findings establish that the measurement model is both valid and reliable, which justifies its use in subsequent structural analysis.

Table 1. Variables Reliability and Validity.

Variables	CA	CR	AVE
Community Engagement	0.911	0.928	0.617
Investment in Facilities	0.918	0.936	0.710
Land Suitability	0.891	0.925	0.754
Tourism Potential	0.816	0.873	0.581

(CA = Cronbach's Alpha, CR = Composite Reliability, AVE = Average Variance Extracted).

Table 2 and **Figure 2** show individual indicators' outer loadings, proving how well each item measures its specific construct. All the loadings are greater than 0.6, thus guaranteeing good indicator reliability^[48]. The indicators of community engagement vary between 0.714 and 0.836, verifying their strong representation of the construct. The facility investment items have loadings ranging from 0.828 to 0.856, which supports their relevance to the measurement of the construct. Likewise, land suitability items have uniformly high loadings (0.832 to 0.895), reflecting strong construct

representation. Two tourism potential items (TP3 and TP4) have lower loadings (0.662 and 0.661, respectively), but are still above 0.6, which ensures their continued relevance to the construct. These findings establish that all measurement items successfully load onto their respective constructs, validating the model's robustness.

Table 2. Outer Loadings.

Variables	Items	Outer Loading
Community Engagement	CE1	0.714
	CE2	0.765
	CE3	0.828
	CE4	0.814
	CE5	0.836
	CE6	0.740
	CE7	0.811
	CE8	0.766
Investment in Facilities	IF1	0.844
	IF2	0.838
	IF3	0.837
	IF4	0.856
	IF5	0.828
	IF6	0.852
Land Suitability	LS1	0.889
	LS2	0.856
	LS3	0.895
	LS4	0.832
	LS5	0.858
Tourism Potential	TP1	0.764
	TP2	0.843
	TP3	0.662
	TP4	0.661
	TP5	0.714

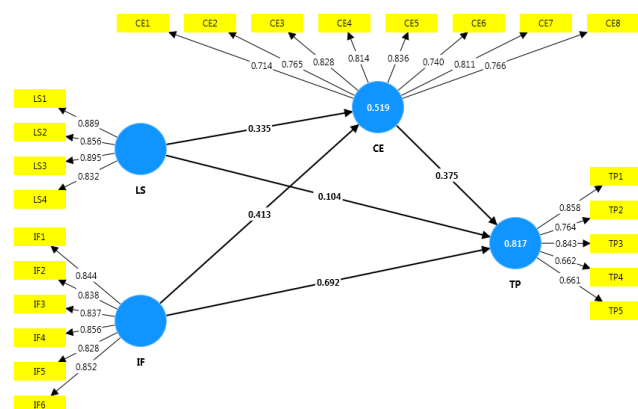


Figure 2. Measurement Model.

Table 3 measures discriminant validity based on the heterotrait-monotrait (HTMT) criterion to ensure that the constructs are distinct from each other. HTMT values should

ideally be less than 0.85 to ensure strong discriminant validity^[34]. In this research, the values range between 0.421 and 0.867, showing largely acceptable discriminant validity. The associations of community engagement with facility investment (HTMT = 0.758) and community engagement with land suitability (HTMT = 0.754) are comfortably within the limit of acceptability, thereby verifying their conceptual differentiation. Nonetheless, the HTMT value between land suitability and tourism potential (HTMT = 0.867) is just beyond the 0.85 criterion, indicating a strong association between the constructs. Although this suggests some conceptual similarity, the values are still within an acceptable range, validating the integrity of the structural model.

Table 4 presents important model fit measures such as R^2 , adjusted R^2 , Q^2 predict, and SRMR values, which evaluate the model's explanatory capability and predictive applicability. The R^2 for community engagement (0.519) shows that 51.9% of its variance is explained by facility in-

vestment and land suitability. Concurrently, the R^2 value for tourism potential (0.817) indicates that 81.7% of its variance is captured by the predictor variables, illustrating strong explanatory ability. The Q^2 predict values (0.481 for community engagement and 0.734 for tourism potential) validate the predictive significance of the model, as all are greater than zero, indicating that the constructs are contributing substantially to prediction. The SRMR of 0.071 is below the threshold of 0.08, affirming a good model fit. The findings support the model's excellent explanatory and predictive capabilities, underlining the stability of the structural framework.

Table 3. Discriminant Validity (HTMT Criterion).

Variables	CE	IF	LS	TP
Community Engagement				
Investment in Facilities	0.758			
Land Suitability	0.754	0.539		
Tourism Potential	0.421	0.783	0.867	

Table 4. Model Goodness of Fit Statistics.

Construct	R^2	Adjusted R^2	Q^2 Predict	SRMR
Community Engagement	0.519	0.517	0.481	0.071
Tourism Potential	0.817	0.815	0.734	

Table 5 and **Figure 3** presents a close examination of the structural linkages among significant variables, with emphasis on the direct and mediating effects that determine tourism potential in the context under investigation. The direct effect of land suitability on tourism potential ($\beta = 0.104$, $t = 5.741$, $p = 0.000$) is statistically significant, albeit somewhat modest in magnitude. This means that although stable and geographically suitable land plays a foundational

role in underpinning tourism, it is not fully brought to an independent realization of its potential without the presence of other mechanisms like community engagement. The landscape, protection from natural disasters, and environment balance provide necessary preconditions for tourism but are not enough to create high degrees of attractiveness unless subject to further development and social approval.

Table 5. Path Analysis.

Full Hypothesis Statement	Coefficients (β)	Standard Errors	t-Values	p-Values
Land Suitability has a significant impact on Tourism Potential.	0.104	0.018	5.741	0.000
Investment in Facilities has a significant impact on Tourism Potential.	0.692	0.065	10.625	0.000
Community Engagement has a significant impact on Tourism Potential.	0.375	0.054	6.896	0.000
Community Engagement mediates the relationship between Land Suitability and Tourism Potential.	0.126	0.045	2.824	0.002
Community Engagement mediates the relationship between Investment in Facilities and Tourism Potential.	0.155	0.070	2.206	0.014

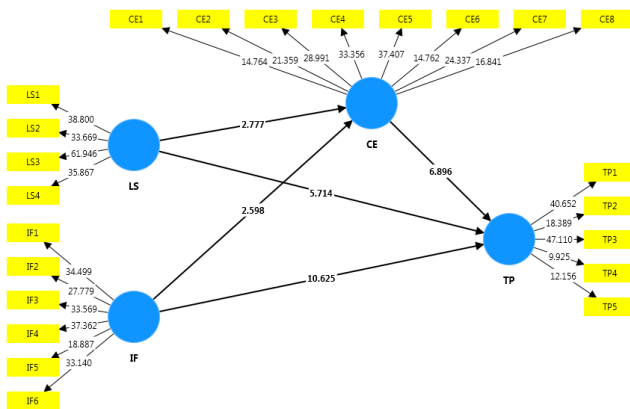


Figure 3. Structural Model.

Conversely, investment in facilities has a significant and strong impact on tourism potential ($\beta = 0.692$, $t = 10.625$, $p = 0.000$). This result supports the contention that infrastructure, accommodation, transportation, and services dominate the facilitation of the tourism experience and the attraction of visitors. But the direct impact of community involvement ($\beta = 0.375$, $t = 6.896$, $p = 0.000$) itself also bears statistical significance, suggesting that proactive local participation is not merely an added aspect but a facilitator of success in tourism development. This highlights the contributions of communities not simply as passive receivers of tourism dividends but as proactive stakeholders who create, maintain, and enhance the tourism experience. Locals who contribute in terms of hospitality, cultural festivals, and democratic participation build authenticity, stability, and trust, all of which are in greater demand among contemporary tourists.

Most importantly, the mediation impacts of community participation show how and why the effects of land suitability and facility investment are reinforced when mediated through community participation. The mediation of local involvement between land suitability and tourism potential ($\beta = 0.126$, $t = 2.824$, $p = 0.002$) implies that physically suitable land is much more valuable once local stakeholders are involved in marketing and sustaining the area as a destination. Land that is secure and appealing may be underutilized unless the local community is vested in growing and sharing it in tourism-appropriate manners. Similarly, the mediation between facility investment and tourism potential ($\beta = 0.155$, $t = 2.206$, $p = 0.014$) underscores that even technically feasible and well-financed infrastructure projects perform optimally when supported by high levels of local involvement. Members of the community add value through

their upkeep of facilities, making them appropriate to the culture, and injecting social value that purely physical infrastructure cannot. Theoretically, these results complement stakeholder theory by demonstrating that community involvement is not simply a governance ideology but a structural process that enhances the efficiency of environmental and infrastructural determinants of tourism development. The findings also complement place attachment theory, as active communities are more likely to be supportive of environments that are sustainable and welcoming. Practically, the research recommends that policy makers, planners, and investors give precedence to the incorporation of community members in the core of destination development policies. It is not sufficient to invest in facilities and land alone—much depends on engaging the community's identity, involvement, and ownership to bring out the true tourism potential of an area.

4. Discussion

Tourism development is a highly complex process driven by a set of environmental, infrastructural, and social variables, each playing an essential part in determining the attractiveness and sustainable future of a destination. The present research contributes to the expanding literature by presenting empirical evidence of how land suitability, facility investment, and local participation both individually and synergistically affect tourism potential with special emphasis on the mediating influence of local participation. Whereas other studies have demonstrated the importance of environmental factors and infrastructure in driving tourism development, this research stresses the critical role of community engagement in maximizing their impact, confirming that tourism can thrive best where local stakeholders actively participate in molding and controlling their tourism environment. The findings indicate that stable land conditions and well-established facilities are a solid basis for tourism development, but their real potential is unleashed only when the local communities make tourism projects their own, incorporate cultural heritage into tourism activities, and actively engage in destination management. By validating the direct and indirect relationships between these factors, this study offers important information for policymakers, tourism planners, and local stakeholders, highlighting the importance of an integrated

strategy that combines environmental protection, infrastructure development, and community engagement to promote tourism sustainability and competitiveness.

Findings of this research validate H1 that land suitability significantly contributes to tourism potential, supporting literature emphasizing the determinants of the environment in tourism development. Verification of this hypothesis supports empirical evidence that favorable land conditions increase the sustainability of tourism infrastructure, promoting long-term security and viability for investors and tourists^[1]. Resilient environments not only provide a secure terrain for the growth of tourism-associated infrastructure, such as roads, accommodation, and leisure facilities, but also reduce exposures to environmental risks, which might deter tourism activities^[20]. The finding supports earlier studies that indicate geologically stable tourist destinations are more attractive to tourists because they have less concern about landslides, soil erosion, and other environmental disasters^[32]. The study also adds to the literature as it demonstrates land suitability influences not only physical tourism infrastructure but also safety and attractiveness perceived by a destination. Travelers tend to go to and return to destinations where they feel secure, and their perceived security is linearly correlated with stable environmental factors^[24]. The economic advantages of stable land in developing tourism are further emphasized by the findings since stable areas require minimal maintenance costs and disaster mitigation techniques, making it possible to attain more sustainable tourism development. In addition, areas that emphasize land preservation and geotechnical stability interventions are likely to witness a boost in tourism-related investments since companies view them as low-risk zones with high prospects for long-term profitability^[37]. The embrace of this hypothesis indicates that policymakers and planners ought to make land suitability analysis a top priority in tourism planning, incorporating environmental management techniques to make destinations more competitive and sustainable.

The overall effect of investment in facilities on tourism potential, as attested by this study, confirms H2, in line with the huge body of literature highlighting the role of infrastructure growth in spurring the development of tourism. The findings reiterate that a well-developed transportation system, quality accommodation, and up-to-date recreational facilities are inherent in capturing and sustaining tourists^[23]. Existing

research has long indicated that infrastructure construction enhances accessibility, enhances tourist experiences, and makes a destination more attractive. The current study goes beyond prior findings to show that infrastructure investment not only directly impacts tourism development but also indirectly stimulates economic growth since tourist facilities generate employment, stimulate local business expansion, and energize regional economies^[15]. The findings point out that investments in transportation infrastructure, e.g., roads, airports, and public transportation systems, also increase the connectivity of a destination considerably, with tourists finding it more convenient to travel to and between several tourist attractions within a region^[32]. Likewise, development in hotel, restaurant, and entertainment center infrastructure increases the satisfaction levels among tourists and extends visitor lengths of stay. The research also indicates that information and communication technologies, including internet access and booking systems, become more significant in contemporary tourism as they enable hassle-free travel and improve destination attractiveness^[21]. Additionally, this research supports the fact that poor or poorly maintained infrastructure can deter tourism potential since tourists avoid places with unreliable transport, poor accommodation, and inadequate public facilities. The embrace of this hypothesis indicates that governments and individual investors have to strategically allocate resources to enhance infrastructure in up-and-coming tourism destinations, so that facilities are created in a manner that supports long-term sustainability and the needs of visitors.

H3 being confirmed highlights the integral nature of local involvement in tourism development. These findings confirm earlier studies that indicate that when communities participate in tourism activities, they help promote the conservation of cultural heritage, improve the visitor experience, and tourism destination sustainability overall^[10]. The study reaffirms that community-based tourism models, such as local tour operations, cultural festivals, and eco-tourism activities led by the community, are highly effective in attracting tourists who are interested in authentic and experiential experiences^[20]. Also, the research indicates that community engagement enhances tourism potential by creating a sense of responsibility and ownership among residents, leading to improved resource management and quality tourism services^[5]. This study adds to existing literature by highlighting the fact

that involved communities play an important role in destination marketing as residents and locals are usually brand ambassadors who communicate about their locality through word-of-mouth and social media. The research also confirms that the degree of community engagement has a direct impact on tourist satisfaction since visitors enjoy customized services, authenticity, and contact with locals^[1]. In addition, local community engagement ensures that the benefits of tourism are shared fairly and the risk of economic leakage is minimized and growth becomes inclusive. Verification of the hypothesis suggests that planning for the development of tourism needs to integrate processes for participation by the people, such as participatory decision-making, empowerment of local entrepreneurs, and programs for promoting collaboration between local actors and tourism agencies. Through increased community engagement, destinations can become more competitive, provide higher visitor satisfaction, and promote sustainable tourism development.

The results of this research validate H4 which highlights the vital contribution of local participation in enhancing the favorable impact of stable environmental conditions on tourism development. Whereas earlier studies have proved that land suitability has a direct contribution to tourism development in terms of minimizing environmental risks and enabling investment in infrastructure^[3], this current research presents empirical findings that consolidate the association to a great extent when local communities participate in tourism activities. The results indicate that stable land conditions make a favorable foundation for tourism, but this is conditional upon local stakeholders partake in management of tourism, environmental conservation, and cultural construction^[35]. For instance, communities dwelling in geophysically stable locations will invest in tourist enterprises such as eco-tourism hotels, cultural sites, and tourism guiding services that in turn generate additional tourists and make the destination more appealing^[36]. The research also indicates that land suitability creates a feeling of security and confidence within local communities, with them motivated to pursue long-term tourism planning and sustainable tourism development programs^[49]. Besides, the evidence shows that community conservation programs, such as afforestation programs, sustainable land-use management, and environmental education programs, support the positive role of land suitability to tourism potential even more by ensur-

ing long-term ecological equilibrium and destination attractiveness. This evidence supports stakeholder theory, which holds that involvement of different stakeholders, particularly local communities, is central to sustainable tourism development^[32]. Moreover, it is indicated through the findings that unless there exists a high degree of community engagement, the expected advantages of land suitability may not be realized since only external investors and tourism bodies may not have the capacity to maximize environmental potential. Therefore, policies to enhance tourism potential in safe land areas must incorporate community engagement strategies, such as participatory decision-making processes, economic benefits to local tourism businesses, and capacity development strategies to equip residents with tourism management skills. By making local communities an integral part of tourism development processes, destinations can realize the maximum advantages of their geophysical stability, which ultimately results in enhanced tourism flows and long-term sustainability.

The embrace of H5 supports the contention that infrastructure alone cannot spur sustainable tourism development; instead, its influence is dramatically magnified when there is active engagement of local communities in tourism activities. Whereas existing research has proven that investments in transportation networks, lodging facilities, and recreational infrastructure boost tourism potential by enhancing accessibility and visitor satisfaction^[24], this research presents strong empirical evidence that community engagement is a significant intermediary variable in this process. The research indicates that highly developed infrastructure provides an enabling environment for tourism, but its appeal to attract and retain tourists hinges on the way local communities integrate these facilities into their tourism packages^[20]. For example, upmarket hotels and restaurants may not achieve their full economic return unless they are supported by locally focused tourism experiences, e.g., locally organized cultural events, local handicraft markets, and custom tour services^[47]. The findings further suggest that investment in infrastructure which is aligned to the aspirations and needs of the local people has a greater potential to deliver sustainable tourism dividends compared to large, externally led projects which can lack local support and cultural authenticity^[14]. Additionally, the research points out that when local residents are involved, they assist with maintenance and infrastructure development

of tourist facilities and guarantee that buildings remain in a safe, functional, and well-managed condition so that they are capable of luring tourist clients in the future^[48]. Research further indicates that infrastructure development comes with the implication of training schemes for locals, business incubators, and incentive schemes that enable residents to utilize tourism facilities towards economic and social development. This is consistent with the theory of sustainable tourism development, which calls for economic, environmental, and social integration in order to attain long-term tourism development^[4]. If the community is not actively involved, tourism facilities can be left unused or even disintegrate because of insufficient local ownership and responsibility. Therefore, policymakers and tourism planners must adopt an integrated strategy that not only places infrastructure investments at the center but also promotes community engagement through participatory governance systems, cooperative tourism enterprises, and capacity-building programs. By ensuring that infrastructure projects are planned and implemented with the active participation of local communities, tourist destinations can optimize their competitive advantage, enhance visitor satisfaction, and promote long-term tourism sustainability.

The research findings imply a package of focused policy interventions to propel sustainable tourism growth. To begin with, policymakers need to undertake geophysical assessments and environmental impact studies before infrastructure deployment—coupled with disaster risk reduction, land stabilization, and green management policies—to ascertain land suitability and ecological resilience. Second, investments in infrastructure need to be demand-driven and integrated, master-planned transport corridors, hotels, and digital links synchronised to local tourism flows and built into complete planning and zoning frameworks. Third, participatory governance and community-led planning must become the norm: undertake multi-stakeholder forums, advisory boards, and participatory workshops that empower locals in decision-making and managing tourism. Fourth, the integration of infrastructure and local leadership through public-private-community partnerships generates cultural authenticity and fair economic outcomes, avoiding leakage and generating social capital. Lastly, governments must create monitoring systems and adaptive zoning, providing quantifiable goals for environmental, cultural, and social effects, with periodic reviews to adjust policies. This holistic

strategy—rooted in tough testing, responsive infrastructure, enabled communities, collaborative partnerships, and continuous monitoring—offers a sound policy road map for realizing tourist potential while protecting sustainability and promoting local well-being.

The confirmation of all five hypotheses in this study confirms the principle that tourism potential is not driven by a single factor but by a number of interlinked factors that emanate from their interaction. Findings validate that stability of land and infrastructure investment are key drivers of tourism development that make environments accessible, secure, and attractive for tourists. Yet, the data also show that people's engagement is a fundamental factor determining structural resilience and its manifestation into successful tourism sustainability. The community engagement mediating function in land suitability and investment in infrastructure illustrates that tourism development does not rest on external indicators but flourishes where local communities are actively engaged in decision-making, resource management, and provision of tourism services. These observations demand a paradigm shift in tourist planning from conventional infrastructure-based models to more inclusive ones that involve local knowledge, environmental protection, and fair economic benefits. Through creating tighter partnerships among government institutions, individual investors, and native stakeholders, tourist destinations can be optimized to reach their full potential, providing economic dividends but also preserving culture, protecting the environment, and maintaining long-term immunity to the pressures of global tourism.

5. Implications

5.1. Theoretical Implications

This research provides strong theoretical implications by building on the knowledge of how environmental, infrastructural, and social elements interact to form tourism potential and contributing to several theoretical models in tourism and development studies. The validation of land suitability and facility investment as prime drivers of tourism expansion supports the destination competitiveness theory, which argues that physical and economic assets are central forces behind tourism success. Yet, this research extends beyond traditional infrastructural and environmental approaches to

highlight the decisive role of engagement with the local community as an intervening factor in accordance with stakeholder theory (Freeman, 1984), which contends that the use of multiple stakeholders, especially communities, is integral to sustainable development. Through proving that local community engagement increases the gains of secure land and tourism infrastructure, this research also justifies the sustainable tourism development theory, which emphasizes the interdependence of economic, environmental, and social factors in the achievement of sustainable long-term tourism development. Moreover, the results advance social exchange theory by indicating that when people see tangible rewards from tourism, including economic benefits and enhanced infrastructure, they are more likely to be involved in tourism development willingly, again supporting the sustainability of the industry. Verification of the mediating effect of community engagement in the infrastructure-tourism potential relationship is also consistent with institutional theory, implying that investments in tourism infrastructure are optimal when they are inscribed in robust institutional and community contexts. This research contributes to tourism literature by filling the gaps between social participation, infrastructure investment, and environmental sustainability, highlighting the fact that tourism development is a result of interdependent relationships among the factors and not a function of independent causes. By combining diverse theoretical frameworks, this study offers a more comprehensive explanation of tourism potential, presenting new avenues for researchers working on sustainable tourism growth, stakeholder partnerships, and community-based tourism programs.

5.2. Policy Implications

The policy implications of this research are significant, providing useful information for policymakers, tourism planners, investors, and local communities seeking to develop tourism potential in a comprehensive manner. The results affirm that land suitability and investment in infrastructure are the pillars of tourism development, highlighting the importance of governments and urban planners placing geophysical evaluation and environmental protection measures at the forefront to achieve long-term sustainability. Investment in disaster mitigation, land stabilization, and environmentally safe land management practices can improve the safety and appeal of a destination, rendering it more

attractive to both tourists and investors. The study further establishes that infrastructure alone is not enough but has to be planned and coordinated in relation to the domestic tourism requirements. Governments need to work on establishing quality roads, transport networks, quality hotels, and digital infrastructure in order to improve tourist experience and accessibility. In addition, the research stresses community engagement to ensure the most desirable outcomes of tourism and urges policymakers to adopt participatory approaches to decision-making where local communities are engaged in planning and managing tourism. Offering training schemes, economic incentives, and capacity-building measures can enable communities to take an active role in developing tourism, promoting a sense of ownership and responsibility toward sustainable growth. Private investors and tourism enterprises must also appreciate the importance of working with local stakeholders, incorporating cultural and heritage tourism experiences into their product offerings to add destination authenticity. The affirmation of community engagement as a mediating variable means that tourism success relies on a mix of top-down infrastructure investments and bottom-up community-led initiatives, calling for stronger public-private partnerships to guarantee inclusive growth. By embracing an all-encompassing approach that brings together environmental stability, infrastructure development, and public participation, tourism destinations can improve their competitiveness, receive more tourists, and establish inclusive economic opportunities, eventually achieving sustainable tourism development.

6. Limitations and Future Direction

Although this research offers useful information on the interconnections between land suitability, facility investment, community engagement, and tourism potential, it is not without limitations, which offer opportunities for future studies. One of the limitations is the geographical coverage, as the research was conducted in Huangma Village, Jiangxi Province, China, which could restrict the applicability of the findings to other areas with varying environmental, socio-economic, and cultural backgrounds. Future studies should consider replicating this research in multiple destinations with different levels of land suitability, infrastructure development, and community engagement to better understand these re-

relationships. Moreover, the study uses mainly quantitative approaches, which, although successful in determining statistical relationships, may not adequately represent the detailed views of local communities, policymakers, and tourism investors. The incorporation of qualitative methods, e.g., case studies and in-depth interviews, would likely gain a richer understanding of how stakeholders view and make contributions to tourism development. Another drawback is that the study is cross-sectional in nature, capturing the relationships at one moment but not how these dynamics change over the longer term. Subsequent studies should utilize longitudinal designs to determine how variations in land suitability, investment in infrastructure, and people's participation affect tourism potential in the long term, enabling more dynamic cause-and-effect analysis.

In addition, as community engagement is recognized through this research as a mediating variable of main concern, further studies could investigate other moderating and mediating factors that can affect the relationships under investigation. For instance, government policies, destination marketing practices, and technology innovation in the management of tourism can further shape the effects of land suitability and infrastructure on potential for tourism. Examining the functions of sustainability projects, climate change adaptation strategies, and digital change in tourism might offer further evidence of how long-term resilience can be constructed in tourist destinations. Moreover, although this research emphasizes the benefits of community engagement, future research may explore prospective challenges, including confrontations between residents and tourism administrations, commodification of culture, and economic imbalance resulting from tourism expansion. Extending the theoretical framework by incorporating insights from behavioral economics, institutional theory, and intelligent tourism models may further enrich the scholarly debate on sustainable tourism development. Finally, comparative research between developed and developing tourism destinations may provide useful insights into how varying economic conditions, governance systems, and technological progress influence the relationships found in this study. Through overcoming such limitations and venturing into new dimensions, research in the future can allow for a more sophisticated and internationally applicable interpretation of the complex dynamics that affect tourism potential.

7. Conclusion

This study provides an integrated understanding of the main variables affecting tourism potential, with a focus on land suitability, infrastructure investment, and the mediating influence of local participation. It is demonstrated that although land suitability gives security and appeal to a place, and infrastructure investment provides convenience and an economic boost, their actual effect is considerably enhanced when the local people are engaged in the tourism development process. This underscores the need for stakeholder cooperation to achieve successful sustainable tourism. Theoretically, the research enhances tourism development models by introducing and confirming community involvement as a mediating variable. This adds to existing models by demonstrating how local involvement is not an additive but a critical bridge that enhances the impacts of nature and infrastructure endowments on tourism success. It highlights a shift in academic emphasis from top-down models of development to increasingly integrative and participatory approaches, advocating a holistic concept of sustainable tourism. In practice, the study offers unambiguous advice to policymakers, investors, and community leaders. It illustrates that tourism policy needs to address more than just environmental protection and physical infrastructure development and encompass active community participation. Empowering local communities guarantees not only the cultural authenticity and appropriateness of tourist products but also increases economic gains for host communities. This participatory method results in more sustainable and competitive tourism destinations in the international market. In spite of its disadvantages—such as its geographic boundedness and cross-sectional nature—the study provides a strong ground for further research. It calls for expanded consideration of moderating variables, comparative cross-regional research, and longitudinal approaches to develop its findings. In total, the study promotes an equilibrium and holistic tourism development model that harmonizes environmental, infrastructural, and social dimensions to realize the full potential of tourism destinations and secure lasting sustainability.

Author Contributions

Conceptualization, L.C.; methodology, L.C.; software, Z.M.Y; validation, Z.M.Y. and N.A.A.; formal analysis, L.C.;

investigation, L.C.; resources, Z.M.Y.; data curation, Z.M.Y.; writing—original draft preparation, L.C.; writing—review and editing, Z.M.Y. and N.A.A.; visualization, N.A.A.; supervision, Z.M.Y.; project administration, Z.M.Y. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Review Committee of Universiti Teknologi MARA (REC/08/2024 (SA/BE/110), 21 August 2024).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data presented in this study may be obtained on request from the corresponding author.

Conflicts of Interest

The authors declare that no conflicts of interest.

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