

Factors Affecting Sustainable Tourism Development: Evidence from the Central Highlands of Vietnam

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Thang Duc Nguyen¹, Nam Thanh Nguyen²,
and Nguyen Nghi Thanh³

Abstract

Tourism is a very important part of Vietnam's economy, and the country's central highlands offer a lot of chances to grow tourism. However, due to the challenging terrain, remote location, and diverse ethnic populations, creating sustainable tourism in this area poses a significant challenge. To address this issue, our study employs quantitative research methodologies, including questionnaire surveys conducted with local stakeholders. Our research identifies cultural, economic, infrastructural, policy, and regulatory factors as critical drivers of long-term tourism growth in the region. The results show that sustainable tourism growth in Vietnam's central highlands needs a complete plan that considers the area's unique natural and cultural environment. In addition, our research gives policymakers and people in the tourism industry important information they can use to promote sustainable tourism development in this region.

Keywords

culture, environment, economy, infrastructure, policies, regulations, sustainable tourism, central highlands, Vietnam

Introduction

Sustainable tourism development aims to maximize beneficial outcomes while minimizing negative repercussions on the environment, economy, and local populations (Buckley, 2017; Milićević et al., 2021). It entails conserving cultural history and regional customs, making wise use of resources, guaranteeing the safety of both locals and visitors, and protecting local traditions (Haboub, 2022). In order to preserve the natural and cultural resources for future generations, sustainable tourism aims to strike a balance between economic development, environmental conservation, and social responsibility (Carr et al., 2016; Buckley, 2017; Tran et al., 2022). This kind of tourism places a strong emphasis on generating long-term benefits for the environment and local communities (Milićević et al., 2021) and works to reduce harmful effects, including overcrowding (Haboub, 2022) and resource misuse, as well as the deterioration of cultural and natural landmarks (Tran et al., 2022).

Vietnam's central highlands are a really outstanding travel destination, providing guests with a singular fusion of spectacular natural beauty, a rich cultural legacy, and an active history (Vujičić et al., 2015). With its gorgeous

scenery, extensive traditions, and distinctive customs, this area is a shining illustration of the variety that can be found across Vietnam (Vujičić et al., 2015). The central highlands' stunning mountain ranges, rolling hills, and lush forests lure tourists, as do the region's many ethnic minority groups, each of which has its own distinct traditions, dialects, and ways of life (Vujičić et al., 2015).

Vietnam's central highlands are similarly steeped in history, having been altered over many years by migration, commerce, and conflict (Mirza, 2016). The architecture, artwork, and cultural traditions of the surrounding people reflect this rich legacy and provide a unique view into Vietnam's past (Mirza, 2016). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has acknowledged the cultural importance of the central highlands of Vietnam by designating a

¹East Asia University of Technology, Vietnam

²Hanoi University of Culture, Vietnam

³Hanoi University of Home Affairs, Vietnam

Corresponding Author:

Nguyen Nghi Thanh, Hanoi University of Home Affairs, Vietnam.
Email: thanhnn7899@gmail.com



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number of locations in the area as World Heritage sites (UNESCO, 2019). According to research by Nguyen et al. (2017), tourism may significantly boost the local economy of villages in the central highlands by creating jobs and revenue. Yet it's also crucial to make sure that these advantages are distributed fairly and aren't concentrated in the hands of a select few people or companies (Agergaard et al., 2016; Scott et al., 2016). Many studies and discussions have been conducted about how tourism affects regional economies (Scott et al., 2016; Tien et al., 2021).

The central highlands of Vietnam offer visitors an unparalleled and memorable experience encompassing nature, culture, and history. Renowned as a highly popular tourist destination in the country, this region stands out due to its amalgamation of natural splendor, cultural diversity, and historical significance (Vujičić et al., 2015). The central highlands attract global tourists in search of an authentic encounter by virtue of their exceptional blend of scenic landscapes, cultural richness, and historical importance (Nguyen et al., 2017).

Drawing upon data from the area, the aim of this study is to investigate the factors influencing sustainable tourism growth in Vietnam's central highlands (Buckley, 2017; Hang et al., 2021). The primary objective is to enhance our understanding of the region's potential and the challenges it faces in sustainable tourism development (Miličević et al., 2021) and to propose actionable measures to foster sustainable practices (Tran et al., 2022). By contributing to the existing discourse on sustainable tourism development (Goeldner & Ritchie, 2009), this study seeks to provide valuable insights to stakeholders in the central highlands of Vietnam and beyond (Carr et al., 2016; Haboub, 2022).

The distinctiveness of this research lies in its specific focus on the Central Highlands of Vietnam and the examination of factors impacting sustainable tourism development in this particular region. Through this concentrated analysis of a unique geographic area, the study contributes to a comprehensive understanding of sustainable tourism within a distinct cultural and environmental context.

Literature Review

Environmental Sustainability

Environmental sustainability refers to the concept of utilizing natural resources and managing human activities in a way that preserves and protects the environment for present and future generations (Mensah, 2019). It involves the responsible use of resources, minimizing pollution and waste, and maintaining ecological balance (Kumar, 2013). The aim of environmental sustainability is to meet current

needs without compromising the ability of future generations to meet their own needs (Mensah, 2019). This encompasses various aspects, including conserving biodiversity, reducing greenhouse gas emissions, promoting renewable energy sources, practicing sustainable agriculture, managing water resources efficiently, and preserving ecosystems (Wang et al., 2021). The goal is to achieve a harmonious relationship between human activities and the natural environment, ensuring the long-term viability and health of ecosystems and the overall well-being of the planet (Wojciechowska-Solis et al., 2022).

The natural splendor of the central Highlands of Vietnam is one of the region's greatest tourist attractions. Yet, tourism may have detrimental effects on the environment, such as increased pollution and garbage. It is essential to guarantee that tourist development is sustainable and environmentally friendly. The central highlands of Vietnam are renowned for their natural beauty, making them a significant tourist destination. Concerns have been raised, however, concerning the environmental effect of this sector as a result of the region's tourist boom. Tourism activities are linked to increasing pollution and waste, as well as the depletion of natural resources, according to a body of academic research (Hang et al., 2021). To solve these issues, it is essential to guarantee that the growth of tourism in the central Highlands is sustainable. Sustainable tourism is tourism that attempts to reduce the negative influence on the environment while enhancing the positive consequences (Buckley, 2017). This style of tourism stresses the ethical use of resources, the preservation of cultural heritage and local customs, and the well-being of locals and visitors (Goeldner & Ritchie, 2009). Several studies have examined the obstacles and potential of sustainable tourist development in the central highlands of Vietnam (Carr et al., 2016; Tran et al., 2022). According to this research, the region's natural beauty is a key tourist lure, but it is not the only one (Carr et al., 2016; Tran et al., 2022).

Notwithstanding these obstacles, the central highlands of Vietnam have an abundance of prospects for encouraging sustainable tourism. For instance, the rich cultural legacy of the area and the strong feeling of community among local inhabitants might be used to promote sustainable tourism practices (Hang et al., 2021). In addition, ecotourism and agritourism development may contribute to the region's sustainable tourism growth (Carr et al., 2016). The natural splendor of Vietnam's central highlands is, in conclusion, a key tourist lure (Khanh, 2021; Nepal et al., 2022). Yet, it is essential to guarantee that the region's tourist growth is sustainable and does not hurt the ecosystem (Harrison, 2014; Nga et al., 2016). While there are challenges to sustainable tourism development (McGregor et al., 2018), such as

the potential for overcrowding, overuse of resources, and degradation of cultural and natural sites (Hoang et al., 2020), there are opportunities for promoting sustainable practices in the region, such as leveraging the cultural heritage of the region (Lan et al., 2022) and promoting ecotourism (Hoang et al., 2018).

Cultural Sustainability

Cultural sustainability pertains to the long-term preservation, promotion, and perpetuation of a broad range of cultural traditions, practices, knowledge, and expressions (Amerta et al., 2018). Its focal point is the safeguarding of the distinctive cultural identities, heritage, and values of communities, encompassing both tangible and intangible aspects, to ensure their continued existence and relevance for current and future generations (Behrens, 2012). By recognizing the inherent value of cultural diversity, cultural sustainability aims to ensure the enduring vitality and resilience of various cultural manifestations despite the challenges posed by processes such as globalization, urbanization, and social transformations (Amerta et al., 2018). The pursuit of cultural sustainability entails a delicate equilibrium between acknowledging historical legacies, embracing contemporary dynamics, and envisioning future trajectories, all of which foster social cohesion, collective identity, artistic ingenuity, and community resilience (Nicholas & Hollowell, 2016). It acknowledges that cultural diversity constitutes a fundamental constituent of sustainable development, playing a pivotal role in the overall welfare and prosperity of individuals and communities.

Preserving the cultural traditions of the central highlands of Vietnam and avoiding their dilution or homogenization is of utmost importance in tourism development (Hang et al., 2021). This region is inhabited by diverse ethnic minority groups, each with its distinct culture, customs, and practices. The area's cultural richness serves as a significant attraction for tourists (Hang et al., 2021). However, the expansion of tourism in the central highlands raises concerns about potential negative impacts on local culture, leading to the erosion or standardization of cultural practices (Carr et al., 2016). This is particularly concerning as the loss of cultural diversity may result in the disappearance of valuable cultural resources and traditions, adversely affecting both local populations and the environment (Tran et al., 2022). Therefore, it is imperative to implement sustainable tourism practices that ensure the preservation and respect of local culture. Sustainable tourism refers to a form of tourism that minimizes negative environmental and socio-cultural impacts while promoting positive outcomes (Buckley, 2017). It emphasizes the conservation of cultural heritage, local customs, and the well-being of both residents and visitors (Goeldner & Ritchie, 2009).

Multiple studies have examined the significance of cultural heritage in fostering sustainable tourism development in the central highlands of Vietnam (Carr et al., 2016; Hang et al., 2021). Research suggests that promoting cultural heritage can contribute to sustainable tourism by attracting visitors, supporting local communities, and safeguarding cultural practices (Hang et al., 2021). Furthermore, the development of community-based tourism has been identified as a means to promote sustainable tourism practices in the region, allowing local residents to actively participate in tourism development and ensuring the preservation of cultural traditions (Carr et al., 2016).

In conclusion, the central highlands of Vietnam represent a unique and culturally diverse area inhabited by various ethnic minority groups. Consequently, it is crucial for tourism development in the region to respect and sustain local cultures, rather than diluting or homogenizing them (Nocca, 2017; Tien et al., 2019). Promoting sustainable tourism practices, such as cultural heritage tourism and community-based tourism, can serve as effective strategies to achieve this goal (Duong et al., 2022). These approaches facilitate the preservation of local customs and traditions while supporting sustainable tourism growth in the region (Buckley, 2017). Additionally, raising awareness and providing cultural sensitivity training to visitors and industry stakeholders can foster appreciation and respect for local cultures and ways of life (Havadi Nagy & Espinosa Segui, 2020; Sonnenschein et al., 2007). The government also plays a crucial role in promoting sustainable tourism growth in the central highlands through the establishment of regulations and policies that encourage sustainable practices and safeguard indigenous customs (Le, 2019). Numerous opportunities and initiatives exist to ensure that tourism development in the central highlands of Vietnam respects and preserves local traditions while promoting sustainable tourism practices.

Economic Sustainability

Economic sustainability refers to managing economic activities and resources to achieve long-term growth, prosperity, and well-being while balancing social equity and environmental responsibility (Garrigós-Simón et al., 2015). It recognizes the interdependence of economic development, social progress, and environmental preservation, aiming to create a resilient and inclusive economy that meets present needs without compromising the needs of future generations (Murad et al., 2013). By integrating economic, social, and environmental objectives, economic sustainability strives for a balanced and sustainable approach to economic growth and overall human well-being (Kjell, 2011).

Tourism may provide local populations in the central highlands of Vietnam with considerable economic advantages, such as employment and revenue generation (Shen et al., 2008). But it's important to make sure that these benefits are shared fairly and don't go to just a few people or organizations (L. Li & Gu, 2019). The effect of tourism on local economies has been studied and debated a lot (L. Li & Gu, 2019; Shen et al., 2008). Even though tourism can bring in a lot of jobs and money for local communities, it is important that these benefits are shared out fairly (Shen et al., 2008). In Vietnam's central highlands, where tourism is a significant sector, this problem has received special attention (Hoang et al., 2020).

Several studies have indicated that the advantages of tourism may be excessively concentrated in the hands of a few people or enterprises, as opposed to being spread equally across the local population (Cohen & Cohen, 2015; Harrowell & Ozerdem, 2019). J. Li et al. (2018) discovered, for instance, that in the central highlands of Vietnam, the tourist sector was controlled by a limited number of multinational corporations, with the majority of benefits accruing to these corporations rather than to local populations. Many techniques have been developed by scholars to ensure that the advantages of tourism are shared equally. Promoting community-based tourism, in which local communities actively participate in the design and administration of tourist activities, is one strategy (Harrowell & Ozerdem, 2019). This may help guarantee that the advantages of tourism are shared more broadly and that locals have a role in the industry's growth.

Another strategy is the promotion of sustainable tourism, which considers the social, economic, and environmental implications of tourism (Cohen & Cohen, 2015). By emphasizing sustainable practices, it is feasible to balance and share tourism's advantages fairly while limiting tourism's negative effects on the environment and local populations. In conclusion, despite the fact that tourism may offer substantial economic advantages to local populations in the central highlands of Vietnam, it is essential that these benefits be distributed fairly. Community-based tourism and sustainable tourism strategies that include the social, economic, and environmental implications of tourism may accomplish this.

Infrastructure

Infrastructure in sustainable tourism pertains to the physical and organizational systems that facilitate tourism activities while minimizing environmental harm and maximizing socio-cultural benefits (Pan et al., 2018). It encompasses various elements such as transportation networks, accommodation facilities, waste management systems, water and energy supply systems, visitor information centers, and recreational amenities (Setini et al.,

2021; Zolfani et al., 2015). In sustainable tourism, infrastructure development focuses on creating or modifying infrastructure to promote environmental conservation, safeguard cultural heritage, and enhance the well-being of local communities (Zolfani et al., 2015). Successful achievement of sustainable tourism objectives relies on effective planning, design, and management of tourism infrastructure (Amerta et al., 2018). Collaboration among government authorities, local communities, tourism businesses, and environmental organizations is vital to ensure infrastructure development aligns with sustainability principles and addresses the specific needs and aspirations of the destination (World Tourism Organization [WTO], 2009).

Appropriate infrastructure is essential for sustained tourist growth (Buckley et al., 2021). Transportation, lodging, and tourism infrastructure growth must be well-planned and balanced with environmental and cultural preservation (WTO, 2009). Many studies have emphasized the significance of effective design and administration of tourist infrastructure (Bhattarai, 2015; Wolters & Zeyen, 2014). However, it is critical to ensure that the benefits of tourism growth are distributed fairly and not concentrated in the hands of a small number of people or organizations (Asa et al., 2022). Numerous studies (Buckley et al., 2021; de Freitas Coelho et al., 2018) have stressed the necessity of well-planned infrastructure development for sustainable tourism. Buckley (2009) discovered, for instance, that poor infrastructure, such as restricted transit and lodging alternatives, might impede the growth of sustainable tourism and have detrimental effects on the environment and local populations. Gössling et al. (2010) also stressed the significance of well-balanced infrastructure development that considers the preservation of the environment and local traditions. They discovered that quick and uncontrolled expansion of tourist infrastructure may lead to environmental deterioration, the loss of cultural assets, and a decline in the quality of life in local communities.

To solve these issues, experts have recommended many solutions for assuring the tourist industry's balanced infrastructural growth. Sustainable tourism planning, which considers the social, economic, and environmental implications of tourism, is one way (Buckley et al., 2021). This may help guarantee that infrastructure development is well-planned and balanced with environmental and cultural preservation. Another way is to promote community-based tourism, in which local communities are actively engaged in the design and administration of tourist activities (de Freitas Coelho et al., 2018). This may help to guarantee that infrastructure development is responsive to the needs and values of local communities and that tourism's advantages are spread fairly.

In conclusion, proper infrastructure is essential for the growth of sustainable tourism (Buckley, 2013; Gössling et al., 2010; Winter et al., 2019). Yet, it is essential to ensure that infrastructure development is well-planned and takes into account the preservation of the environment and local traditions (Buckley, 2013; Gössling et al., 2010, 2014). This may be achieved through sustainable tourist planning that considers the social, economic, and environmental aspects of tourism (Hall et al., 2020; Telfer & Sharpley, 2015; Winter et al., 2019). Moreover, community-based tourism activities may contribute to the region's sustainable infrastructure development (Buckley, 2013; Gössling et al., 2010; Winter et al., 2019).

Government Policies and Regulations

Government policies and regulations have a crucial role in fostering sustainable tourism, according to research (Hall et al., 2015; Weaver & Lawton, 2013). Weaver and Lawton (2013) discovered, for instance, that government policies and regulations may stimulate the growth of sustainable tourism by giving incentives for sustainable behaviors and penalizing unsustainable ones. Moreover, Gössling et al. (2010) stressed the significance of government policies and regulations in encouraging sustainable tourist growth. They discovered that government regulations may play a crucial role in maintaining the environment and local traditions and guaranteeing the equitable distribution of tourism's advantages among local populations. For the promotion of sustainable tourist development, experts have proposed a number of government participation initiatives. Weaver and Lawton (2013) say that one way to do this is to promote sustainable tourist planning, which includes making laws and initiatives that take into account the social, economic, and environmental effects of tourism.

Promoting community-based tourism, which entails the active participation of local communities in the development and administration of tourist activities (Hall et al., 2015), is another strategy. This may help guarantee that government policies and regulations are responsive to the needs and values of local communities and that tourism's advantages are spread fairly. In conclusion, the government plays a crucial role in fostering sustainable tourism growth (Buckley et al., 2021; Hall et al., 2015). Government laws and regulations are required to promote sustainable practices, safeguard the environment and local cultures, and guarantee that the advantages of tourism are shared fairly (As'adi et al., 2017; Buckley & Turner, 2012; Scott & Gössling, 2015). These policies should support sustainable tourist planning and community-based tourism practices that include the social, economic, and environmental aspects of tourism (As'adi et al., 2017; Gössling & Hall, 2006; Hall et al., 2015).

The government plays a crucial role in fostering the development of sustainable tourism in the Central Highlands. There must be policies and laws in place to promote sustainable activities, safeguard the environment and local traditions, and guarantee that tourist gains are shared fairly (Bhuiyan et al., 2011). In the academic literature, the importance of government in fostering sustainable tourism development is well acknowledged. It is commonly understood that the government plays a vital role in establishing laws, regulations, and programs that promote sustainable practices and safeguard the environment, local cultures, and local communities (Hang et al., 2021).

Based on literature reviews, we formulated the following research hypotheses.

Hypothesis 1 (H1): The preservation of the natural environment has a substantial and beneficial effect on the sustainable growth of tourism in Vietnam's Central Highlands area.

Hypothesis 2 (H3): The promotion of cultural sustainability has a major and favorable effect on the development of sustainable tourism in Vietnam's Central Highlands area.

Hypothesis 3 (H3): The attainment of economic sustainability has a substantial and beneficial influence on the development of sustainable tourism in Vietnam's Central Highlands.

Hypothesis 4 (H4): The creation of suitable infrastructure has a major and favorable effect on the sustained growth of tourism in Vietnam's Central Highlands area.

Hypothesis 5 (H5): The execution of appropriate government policies and regulations has a major and beneficial influence on the development of sustainable tourism in Vietnam's Central Highlands.

Based on the above research hypotheses, the following research model is proposed (Figure 1).

Methodology

Instrument and Participant

The process of data collection in research encompasses various crucial steps, which include designing the research study, selecting appropriate data collection instruments, conducting pilot studies, implementing data collection methods, recording data, and analyzing it using appropriate techniques. Furthermore, adherence to ethical principles is essential to ensure informed consent, confidentiality, and privacy of participants (Reja et al., 2003).

The questionnaire underwent review by four experts, comprising a psychologist, a sociologist, a public policy

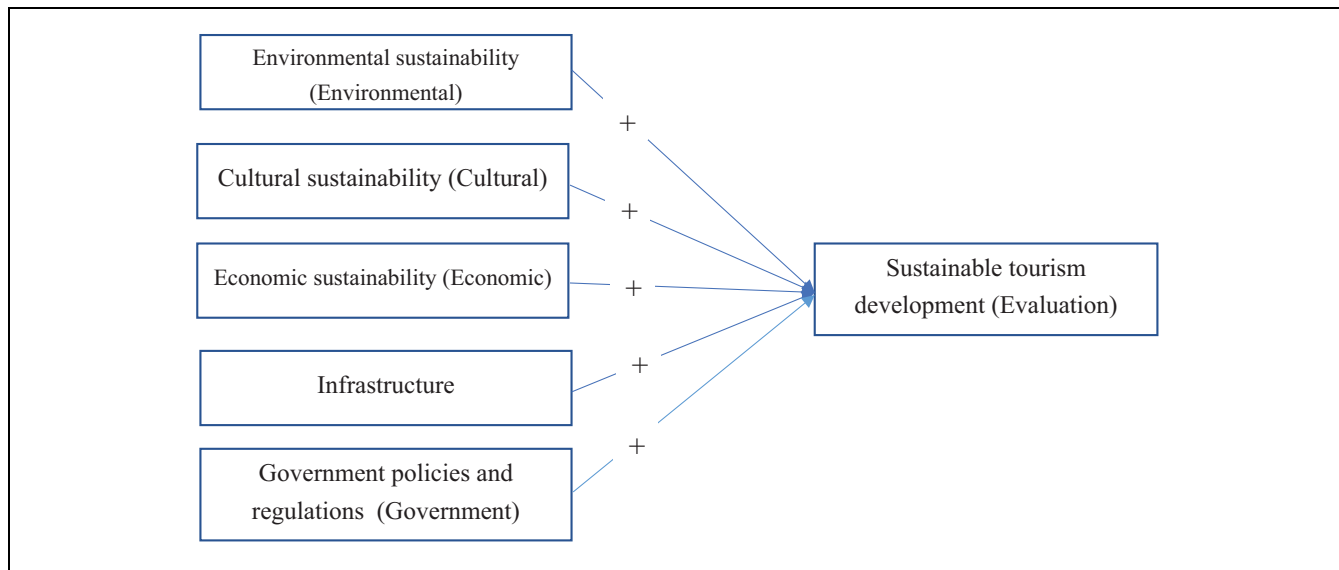


Figure 1. Proposed research model.

expert, and two tourism experts. These experts evaluated the questionnaire to ensure its quality and relevance to the study (Reja et al., 2003). The questionnaire consisted of two parts. The first part aimed to collect information regarding the participants' age, gender, level of education, and occupation. The second part aimed to gather information about the participants' perspectives on various aspects, such as environmental sustainability (Buckley, 2012), cultural sustainability (Richards et al., 2017), economic sustainability (Brouder et al., 2020), infrastructure (Cooper et al., 2020), and government policies and regulations (Inskeep, 2018).

To ensure the questionnaire's appropriateness, two linguists modified it (Santos Prudêncio et al., 2016), and it underwent a pre-test involving 40 individuals selected to represent the demographics of the research population. The pre-test assessed the questionnaire's functionality, comprehension, and overall effectiveness. Based on this assessment, minor adjustments were made to the questionnaire's structure and wording, resulting in the final Vietnamese version (Bowling, 2005; DeVellis, 2017; Appendix).

The participants included in the study were carefully chosen by the research team, specifically those who were actively engaged in sustainable tourism development within the region (Bryman, 2016). Testing the questionnaire with 40 participants allowed for an initial evaluation of its validity and effectiveness. Feedback from the participants was valuable in refining the questionnaire's structure, flow, and response options (Scherpenzeel et al., 2002). This iterative process ensured that the final version of the questionnaire was reliable, valid, and capable of capturing essential data pertaining to community-based tourism and poverty alleviation among ethnic minority communities in the Central Highlands of Vietnam.

The research was conducted in February 2022 in Lam Dong and Dak Lak provinces, which are prominent economic, cultural, and tourism destinations in the Central Highlands area of Vietnam (Pan et al., 2018). A sample of 200 Vietnamese visitors, who had prior experience visiting these provinces, was selected to participate in the study based on their familiarity with the region (Pan et al., 2018). The participants were provided with questionnaires distributed by a member of the research team, and they marked their responses using pencils (Dörnyei & Taguchi, 2010). The research achieved a 100% response rate, with all 200 surveys completed and returned (Fowler, 2013). Table 1 presents the demographic information of the participants, offering an overview of their characteristics (Fowler, 2013).

The inclusion of 200 participants ensures a sufficiently large sample size, enabling the generation of meaningful and representative data (Dell et al., 2002). This approach facilitates a comprehensive understanding of the impact of community-based tourism on poverty alleviation among ethnic minority communities in the Central Highlands of Vietnam.

Reliability Analysis

In assessing the quality and precision of survey data, reliability analysis is an important step. The purpose of reliability analysis is to determine the consistency and stability of a measuring instrument or survey questionnaire across time and situations. In this study, Cronbach's alpha was used to determine the degree of internal consistency dependability. The criteria for evaluating Cronbach's alpha analysis findings are subjective and dependent on the particular study environment and

Table 1. Demographic Characteristics of Survey Participants.

		Education					
		Bachelor's degree		High school diploma		Postgraduate diploma	
		Count	Row (N %)	Count	Row (N %)	Count	Row (N %)
Gender	Female	47	71.2	13	19.7	6	9.1
	Male	86	64.2	23	17.2	25	18.7
Age	20–25 years	16	61.5	5	19.2	5	19.2
	31–35 years	40	71.4	10	17.9	6	10.7
	36–40 years	22	71.0	4	12.9	5	16.1
	Over 40 years old	55	63.2	17	19.5	15	17.2
Occupation	Entrepreneur	19	67.9	3	10.7	6	21.4
	Government official	25	64.1	9	23.1	5	12.8
	Other	19	73.1	1	3.8	6	23.1
	Private sector employee	70	65.4	23	21.5	14	13.1

Table 2. Summary of Reliability.

Scales	Number of variables observed	Reliability coefficients (Cronbach Alpha)	The correlation coefficient of the smallest total variable
Environmental	5	.747	.472
Cultural	5	.763	.513
Economic	5	.778	.530
Infrastructure	5	.762	.473
Government	5	.744	.452
Evaluation	5	.802	.517

questionnaire or test variables being evaluated (Cortina, 1993; Kline, 2015; Nunnally & Bernstein, 1994). In general, a number of .7 or above is seen as indicating a high degree of internal consistency and dependability and is regarded as an acceptable criterion for the majority of surveys (Cortina, 1993; Kline, 2015; Nunnally & Bernstein, 1994). A number between .6 and .7 may be acceptable for certain surveys, but may suggest that some questionnaire questions are not contributing to the assessment of the underlying concept and may need to be altered or eliminated (Cortina, 1993; Kline, 2015). A number below .6 is often regarded as poor, suggesting that the questionnaire questions may not be assessing the same concept and may need revision (Kline, 2015; Nunnally & Bernstein, 1994).

Table 2 presents the results of testing the reliability and validity of the research questionnaire. Cronbach's alpha coefficients for all items were more significant than .7, indicating the internally consistent reliability of the questionnaire (Hair et al., 2019; Nunnally & Bernstein, 1994). The validity of the questionnaire was also confirmed through construct validity testing, including exploratory

factor analysis and confirmatory factor analysis (Bollen, 1989; Hair et al., 2019). All items in the questionnaire were found to have good convergent validity, indicating that they are measuring the same construct (Fornell & Larcker, 1981). Discriminant validity was also established, as each item was more strongly correlated with its respective construct than with other constructs in the questionnaire (Fornell & Larcker, 1981; Hair et al., 2019). The study thus demonstrated a high level of reliability and validity in the questionnaire used to measure the factors affecting sustainable tourism development in the Central Highlands of Vietnam.

Factor Analysis

Factor analysis is a widely used statistical tool in the social sciences that can help researchers identify underlying factors or dimensions in a set of variables. The process involves reducing the number of variables in a dataset by identifying patterns of inter-correlation among them and grouping them into a smaller set of underlying factors (Gorsuch, 1983). The number of factors to be extracted is often determined through the examination of scree plots and eigenvalues (Fabrigar et al., 1999). The results of a factor analysis can inform the development of more refined research questions, hypotheses, and models (Hair et al., 2010) and provide insights into the key factors that explain the relationships among variables in a dataset (Chen, 2008).

Table 3 presents the results of the factor analysis conducted to validate the research questionnaire. The Bartlett's test of sphericity was statistically significant (Sig. = .000), and the Kaiser-Meyer-Olkin coefficient (KMO) = 0.891 (>0.5), indicating that the observed variables are correlated in the population and are, therefore,

Table 3. Result of Factor Analysis.

Rotated component matrix ^a	Component					
	1	2	3	4	5	6
Evaluation 29	.750					
Evaluation 30	.685					
Evaluation 28	.641					
Evaluation 27	.611					
Evaluation 26	.587					
Government 24		.713				
Government 23		.652				
Government 22		.626				
Government 25		.607				
Government 21		.518				
Infrastructure 16			.730			
Infrastructure 20			.669			
Infrastructure 19			.637			
Infrastructure 18			.619			
Economic 13				.731		
Economic 12				.690		
Economic 14				.618		
Economic 11				.557		
Economic 15				.527		
Cultural 8					.721	
Cultural 6					.660	
Cultural 9					.624	
Cultural 7					.515	
Environmental 2						.805
Environmental 1						.730
Environmental 3						.530

Note. Extraction method: principal component analysis; Rotation method: Varimax with Kaiser normalization.

^aRotation converged in seven iterations.

suitable for factor analysis. The factor loading coefficients for all variables ≥ 0.5 , indicating the validity of the factor analysis. The criterion for practical significance of factor loading is a minimum level = 0.3, an essential level = 0.4, and a practical level = 0.5. Table 3 shows that all variables have factor loading coefficients > 0.5 , demonstrating the validity of the factor analysis. The total of the load squared extraction for the six factors = 57.635% ($> 50\%$), indicating that the extracted factors can explain a significant amount of variance in the data. The initial eigenvalue of the six factors = 1.128 (> 1.00), indicating that the extracted factors have eigenvalues greater than one and are, therefore, valid. These results demonstrate the suitability and validity of exploratory factor analysis for the proposed research model (Hair et al., 2019; J. O. Kim & Mueller, 1978; Marôco, 2010; Tabachnick & Fidell, 2013). Four items—Infrastructure 16, Environmental 4, Environmental 5, and Cultural 10—were excluded from the regression model because their factor loadings were ≤ 0.50 , indicating a weak association with the proposed model.

Correlation Analysis

Correlation analysis is a statistical method used to measure the strength and direction of the linear relationship between two variables (Bryman & Bell, 2015). According to Tabachnick and Fidell (2013), it is a way to quantify the association between two variables and to determine if changes in one variable are associated with changes in another variable. The correlation coefficient, also known as Pearson's correlation coefficient, is a measure of the strength of the linear relationship between two variables and ranges from -1 to 1 (Field, 2013). According to Hair, Black, et al (2017), -1 indicates a perfect negative correlation, 1 indicates a perfect positive correlation, and 0 indicates no correlation. Correlation analysis can provide valuable insights into the relationships between variables and can be used to make predictions about one variable based on the values of another variable (Gronlund & Linn, 2014). However, it is important to note that correlation does not imply causality and that other factors may be contributing to the relationship between the variables (Agresti & Finlay, 2009).

The results of the correlation analysis (Figure 2) show that, with a 95% significance level, the correlation coefficient indicates that the relationship between the dependent variable and the independent variable is statistically significant (Sig. = .05). The magnitude of the correlation coefficients ensures that the variables are used to analyze the multiple linear regression model and the variable control regression in the next step (Larose, 2014; Seraphin et al., 2019). The correlation analysis allows for the examination of the relationships between variables in a quantitative manner (Field, 2018). Additionally, the significance level of the correlation coefficient is an essential element of the correlation analysis, as it determines whether or not the relationship between the variables is statistically significant (Larose, 2014). Furthermore, the use of multiple linear regression and variable control regression in the next step allows for the identification of the factors that most significantly impact sustainable tourism development (Seraphin et al., 2019). Multiple linear regression enables the identification of the independent variables that are most significantly related to the dependent variable, while variable control regression allows for the control of extraneous variables that may influence the relationship between the dependent and independent variables (Field, 2018; Larose, 2014).

Multivariate Linear Regression Analysis

Multivariate linear regression analysis is a statistical method used to examine the relationship between multiple independent variables and a dependent variable (Bryk & Raudenbush, 1992). In this type of regression analysis, a



Figure 2. Correlation analysis results.

Table 4. Regression Analysis Results.

Dependent variable:	
Evaluation	
Model	
Environmental	0.080 (0.061)
Cultural	0.253*** (0.066)
Economic	0.174** (0.072)
Infrastructure	0.157** (0.069)
Government	0.230*** (0.070)
Constant	0.417* (0.216)
Observations	200
R ²	0.475
Adjusted R ²	0.443
Residual SE	0.548 (df= 194)
F statistic	32.593*** (df= 5.194)
VIF:	Environmental = 1.435, Cultural = 1.565, Economic Infrastructure = 1.827, Government = 1.559

* $p < .1$. ** $p < .05$. *** $p < .01$.

linear equation is used to model the relationship between the independent variables and the dependent variable (Hair et al., 1998). The goal of multivariate linear regression is to determine the coefficients for each independent variable, which represent the strength and direction of their relationship with the dependent variable (Greene, 2003). These coefficients can then be used to make predictions about the dependent variable based on the values of the independent variables (Hair et al., 1998). Multivariate linear regression is commonly used in the social sciences, economics, and other fields to understand the relationships between variables and to make predictions based on those relationships (Bryk & Raudenbush, 1992).

The results of the multivariable linear regression analysis (Table 4) indicate that the regression model is valid to explain the results, as evidenced by the statistical significance of the F -test (p -value = .000, $df = 5.194$) (Hair et al., 2019). The model also does not have multicollinearity, as the variables in the model have a $VIF = 1.436 < 3.00$ (Kutner et al, 2005). This suggests

that the variables are not highly correlated with each other, and the regression coefficients can be estimated with high precision.

Results

According to the research results presented in Table 4, the variable “environmental” does not have a significant impact on the variable “evaluation,” as indicated by the p -value of .193, which exceeds the significance criteria of 95% (Hair, Hult, et al., 2017). Therefore, it can be concluded that the data are not statistically significant, and H1 cannot be supported (Fornell & Larcker, 1981). These findings are consistent with previous research conducted in Vietnam, which suggests that protecting the natural environment may not have a significant and favorable influence on the sustainable growth of tourism in the Central Highlands region (Hristov & Ramkissoon, 2016; Lai, 2020; Ngo et al., 2018; Thanh & Kirova, 2018; Ye et al., 2020). These studies provide further evidence that other factors, such as economic and social aspects, may have a greater impact on the development of sustainable tourism in the region.

Table 4 presents compelling evidence supporting the positive and statistically significant relationship between the “culture” variable and the “evaluation” variable. The regression coefficient ($\beta = .253$) and the significance level of 95% (p -value = .000) provide strong evidence to support H2 that fostering cultural sustainability has a favorable and significant impact on the sustainable tourism development of Vietnam’s Central Highlands (Vo, 2021). These findings align with prior research that has emphasized the importance of cultural sustainability in the context of sustainable tourism development (Amalu et al., 2020; Buckley, 2012; Ianioglo & Rissanen, 2020; K. Kim et al., 2017; Timothy & Ron, 2013; Wongso et al., 2019; Xu et al., 2019). The positive and significant effect of cultural sustainability on the development of sustainable tourism highlights the need to promote and preserve cultural diversity in the Central Highlands region of Vietnam to achieve sustainable tourism growth.

The findings reported in Table 4 reveal a significant positive impact of the variable “economic” on the variable “evaluation,” as indicated by a regression coefficient ($\beta = .174$) and a significance level of 95% (p -value = .050) (Vo, 2021). Thus, H3 is supported, suggesting that achieving economic sustainability has a significant and favorable influence on sustainable tourism development in the Central Highlands of Vietnam. This finding aligns with previous research emphasizing the critical role of economic sustainability in sustainable tourism development (Blanke & Chiesa, 2013; Gössling et al., 2018; Gursoy, 2018; Nunkoo & Gursoy, 2017; Park et al., 2015; Sharpley & Telfer, 2015).

Table 4 provides evidence that the variable “infrastructure” has a positive and statistically significant impact on the variable “evaluation,” as indicated by a regression coefficient ($\beta = .157$) and a significance level of 95% (p -value = .001) (Vo, 2021). Therefore, H4 is supported, indicating that the availability of appropriate infrastructure has a considerable and favorable impact on sustainable tourism development in Vietnam’s Central Highlands. This finding is consistent with earlier studies that have emphasized the importance of infrastructure development for tourism growth and development (Alegre & Cladera, 2009; Gursoy & Rutherford, 2004; Nji & Tichaawa, 2012; Song et al., 2012; Tang & Abosedra, 2014).

Table 4 confirms that the variable “government” has a significant positive influence on the variable “evaluation,” as indicated by a regression coefficient ($\beta = .230$) and a significance level of 95% (p -value = .000) (Vo, 2021). These results support H5, indicating that effective government policies and regulations play a crucial role in the development of sustainable tourism in Vietnam’s Central Highlands. These findings are consistent with prior research emphasizing the importance of government support for sustainable tourist growth (Dewi & Ginting, 2022; Ruhanen & Whitford, 2018). Therefore, this research validates the critical role of the government in promoting sustainable tourism in the region.

Discussion

Although maintaining the natural environment is an essential objective for sustainable tourism development, research indicates that it may not have a major and beneficial influence on the sustainable tourist development of Vietnam’s Central Highlands. Key aspects that have a substantial and beneficial influence on sustainable tourism development in the Central Highlands area of Vietnam include the promotion of cultural sustainability, economic sustainability, the supply of suitable infrastructure, and effective government policies and regulations (Vo, 2021). According to Choi and Murray (2010), the attitudes of locals toward sustainable tourism initiatives are vital to their success. In addition, it is vital for sustainable tourism growth to comprehend and manage tourism’s implications on both the demand and supply sides (Gössling et al., 2018). Including the active engagement of local communities, stakeholders, and tourists, sustainable tourism is a developing, global concept that is always changing (Bramwell & Lane, 1993). Furthermore, in order to provide solutions to problems, the theoretical divide in the literature on sustainable tourism development should be investigated (Sharpley, 2000). In addition, integrating cross-sectional and longitudinal research with demographic variables such as age,

gender, employment, and income may offer a more thorough knowledge of the factors that influence sustainable tourism growth in the area (Creswell, 2013; Hall & Page, 2009; K. Kim et al., 2013).

The findings suggest that while maintaining the natural environment is an essential objective, it may not have a significant and beneficial influence on sustainable tourism development in the region. Instead, other factors such as cultural sustainability, economic sustainability, suitable infrastructure, and effective government policies and regulations play substantial roles.

The study emphasizes the importance of understanding and managing the implications of sustainable tourism on both the demand and supply sides, as well as the attitudes of locals toward sustainable tourism initiatives. It also highlights the need for active engagement from local communities, stakeholders, and tourists. These findings underscore the evolving and complex nature of sustainable tourism as a global concept.

The results of this study are similar to previous studies in terms of the importance of economic sustainability, infrastructure, and government policies and regulations in promoting sustainable tourism development. Previous research has also highlighted the critical role of these factors in sustainable tourism growth and development (Alegre & Cladera, 2009; Blanke & Chiesa, 2013; Dewi & Ginting, 2022; Gössling et al., 2018; Gursoy, 2018; Gursoy & Rutherford, 2004; Nji & Tichaawa, 2012; Nunkoo & Gursoy, 2017; Park et al., 2015; Ruhanen & Whitford, 2018; Sharpley & Telfer, 2015; Song et al., 2012; Tang & Abosedra, 2014).

However, the results of this study differ from previous research in terms of the impact of environmental factors on sustainable tourism development in the Central Highlands of Vietnam. While previous studies have emphasized the importance of protecting the natural environment for sustainable tourism growth (Hristov & Ramkissoon, 2016; Lai, 2020; Ngo et al., 2018; Thanh & Kirova, 2018; Ye et al., 2020), this study found that environmental factors did not have a significant impact on sustainable tourism development in the region.

Moreover, the current study highlights the positive and significant impact of cultural sustainability on sustainable tourism development in the Central Highlands region, which has been less emphasized in previous studies. The study emphasizes the need to promote and preserve cultural diversity in the region to achieve sustainable tourism growth, which aligns with prior research that has emphasized the importance of cultural sustainability in sustainable tourism development (Amalu et al., 2020; Buckley, 2012; Ianioglo & Rissanen, 2020; K. Kim et al., 2017; Timothy & Ron, 2013; Wongso et al., 2019; Xu et al., 2019).

Overall, the study's findings suggest that while economic sustainability, infrastructure, and government

policies and regulations are essential factors for sustainable tourism development, the significance of environmental and cultural sustainability may vary depending on the specific context of the region being studied.

Conclusion

The goal of this research is to further knowledge of the variables influencing the adoption of sustainable tourism policies in Vietnam's Central Highlands and to provide suggestions on how to address these issues to encourage the growth of sustainable tourism in the area. The findings of this research may assist in the creation of efficient plans for fostering the growth of sustainable tourism in the Central Highlands of Vietnam and other places that are comparable (Nepal et al., 2022). Five variables—"environmental," "cultural," "economic," "infrastructure," and "government" make up the research model employed in this study, which is based on other studies (Mowforth et al., 2007; Telfer & Sharpley, 2015). The findings of this research show that sustainability in the areas of culture, economy, infrastructure, and government has a positive and substantial influence on assessments of sustainable tourist development in Vietnam's Central Highlands (Vo, 2021).

This research has limitations that, like all empirical studies, should be taken into account when analyzing the findings. First, the results of our poll represent the respondents' subjective opinions about the issues under investigation. There are various problems with personal data that are difficult to prevent in surveys (Babbie, 2010). Second, since our data was only gathered once, there are certain restrictions on how we may analyze and assess the findings. Future studies should include both cross-sectional and longitudinal research (Fornell & Larcker, 1981). The approach of deliberate sampling has limitations and does not accurately represent population features (Saunders et al., 2018). Third, since our survey was performed inside the Vietnamese cultural setting, more generalizations are needed than would be possible by extrapolating the findings from our study to other nations and cultural contexts. Demographic factors were not examined in this research. To have a more complete understanding of the elements driving sustainable tourism growth in the Central Highlands of Vietnam, future studies should take into account demographic aspects such as age, gender, profession, and income (Hudson et al., 2015).

Overall, the results of this research have significant repercussions for decision-makers and practitioners in the Central Highlands of Vietnam's tourist business. The beneficial link between sustainable tourism development and cultural, economic, infrastructural, and governmental sustainability emphasizes the need for developing

sustainable tourism policies that take these elements into account. The Central Highlands of Vietnam and other places may assure sustainable tourist growth in this way, which will benefit the local inhabitants, the environment, and the tourism sector (Hristov & Ramkissoon, 2016).

Like other empirical studies, this one has some problems that need to be taken into account when looking at the results. At first, our survey method was based on what the respondents thought about the questions we asked (Fowler, 2014). It is hard to avoid the problems that come with collecting personal information in surveys (Rivers, 2007). Second, we can't fully analyze and evaluate the results because we only collected data during one time period (Creswell & Creswell, 2017). Future research must include both cross-sectional and longitudinal investigations (Hair, Hult, et al., 2017). Third, our survey was performed within the cultural context of Vietnam, necessitating broader generalizations than are possible when extending the development research model and study findings to other nations and cultures (Loomis & Maxwell, 2003). Moreover, demographic characteristics were not examined in this research. Finally, the

approach of deliberate sampling has limitations and does not perfectly represent population features (Patton, 2015). A future study should investigate demographic parameters such as age, gender, profession, and income (Fornell & Larcker, 1981) in order to provide a more complete understanding of the elements influencing the development of sustainable tourism in the Central Highlands of Vietnam.

The study's reliance on data from a single time period restricts the ability to fully analyze and evaluate the results. The research was conducted within the cultural context of Vietnam, limiting the generalizability of the findings to other nations and cultures. Additionally, the study did not examine demographic characteristics, which could provide a more comprehensive understanding of the factors influencing sustainable tourism development in the Central Highlands.

Overall, while the research results offer valuable insights into the factors affecting sustainable tourism development in the Central Highlands of Vietnam, it is important to consider the limitations and further research needed to provide a more complete understanding of the topic.

Appendix

Questionnaire

Your profile: Please select ONE answer from each statement that best describes you.

Gender: ☐ female ☐ male

Age:years old

Education level:

Occupation:.....

The purpose of this survey is to identify the factors affecting sustainable tourism development in the Central Highlands of Vietnam. On this scale, there is no right or incorrect response. Instead, mark the number that best represents your viewpoint on each survey topic on a scale of 1 to 5, as shown.

Environmental sustainability

Environmental 1	Local parks and natural spaces are kept up to a high standard of cleanliness.	1	2	3	4	5
Environmental 2	How often do you see regional companies and tourist attractions using sustainable practices like trash minimization and recycling?	1	2	3	4	5
Environmental 3	The local ecology has suffered from the detrimental effects of tourism, such as littering and pollution.	1	2	3	4	5
Environmental 4	The environment is being adequately prioritized and protected by local authorities.	1	2	3	4	5
Environmental 5	How crucial do you believe it is that this region's tourism prioritizes green practices and lessens its environmental impact?	1	2	3	4	5

Cultural sustainability

Cultural 1	How well do you think the regional cultural traditions and heritage have been preserved?	1	2	3	4	5
Cultural 2	What degree do you think the preservation of regional cultural practices and values should take precedence over tourist development?	1	2	3	4	5

(continued)

Appendix (continued)

Cultural 3	Have you seen any modifications to the local communities' cultural practices as a consequence of tourism?	1	2	3	4	5
Cultural 4	How crucial is it that tourist activities respect and uphold the local people's traditional customs and practices?	1	2	3	4	5
Cultural5	What efforts do you believe the local government is doing to promote and protect the region's cultural heritage?	1	2	3	4	5
<i>Economic sustainability</i>						
Economic 1	How would you rank the distribution of the local community's economic gains from tourism?	1	2	3	4	5
Economic 2	What proportion of local companies do you believe are benefited by tourism?	1	2	3	4	5
Economic 3	How important do you believe it is for tourism in this area to provide locals with cash and job opportunities?	1	2	3	4	5
Economic 4	Have you seen any variations in local pricing for products and services as a result of tourism?	1	2	3	4	5
Economic 5	How much do you believe local community development and long-term economic growth are influenced by tourism in this area?	1	2	3	4	5
<i>Infrastructure</i>						
Infrastructure 1	How would you grade the central Highlands' tourism-friendly transportation options and service levels?	1	2	3	4	5
Infrastructure 2	How would you evaluate the accessibility to and quality of lodging (such as hotels and resorts) for visitors in the central highlands?	1	2	3	4	5
Infrastructure 3	Do you believe that the Central Highlands' present tourism infrastructure adequately satisfies tourists' requirements and expectations?	1	2	3	4	5
Infrastructure 4	How would you grade the central highlands' tourism attractions in terms of their ease of access and convenience?	1	2	3	4	5
Infrastructure 5	How would you evaluate the central highlands' overall infrastructural development in terms of promoting sustainable tourism?	1	2	3	4	5
<i>Governmental directives and rules</i>						
Government 1	How well do you think the local government is protecting the environment and local customs in the tourism sector by following laws and rules?	1	2	3	4	5
Government 2	How much do you think that the government's current policies and regulations support regional sustainable tourism development?	1	2	3	4	5
Government 3	Do you believe that government policies are helpful in encouraging eco-friendly practices in the tourism sector?	1	2	3	4	5
Government 4	How sure are you that the neighborhood administration's laws and policies are meant to keep cultural traditions and local history alive?	1	2	3	4	5
Government 5	How much, in your opinion, do laws and regulations from the government help local communities share the advantages of tourism fairly?	1	2	3	4	5
<i>Analyze the growth of sustainable tourism</i>						
Evaluation 1	The Central Highlands of Vietnam's relevance of sustainable tourist development	1	2	3	4	5
Evaluation 2	The Central Highlands' ecology and the effects of tourist growth	1	2	3	4	5
Evaluation 3	The extent to which Central Highlands tourist growth benefits local communities	1	2	3	4	5
Evaluation 4	The degree of satisfaction with the direction the Central Highlands tourist business is now taking	1	2	3	4	5
Evaluation 5	The degree to which people agree that it is critical to take action to guarantee the Central Highlands' tourist industry's long-term viability	1	2	3	4	5

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ORCID iD

Nguyen Nghi Thanh  <https://orcid.org/0000-0002-0791-8063>

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Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

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