

# SUPPORT OF LOCAL RESIDENTS FOR NATURE-BASED TOURISM DEVELOPMENT: EVIDENCE FROM BACH MA NATIONAL PARK, VIETNAM

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**Abstract.** Local residents are considered key stakeholders, playing a vital role in the success of tourism development and the management of protected areas. The main aim of the study is to examine relationships between tourism impacts perceived by residents, community involvement, and support for nature-based tourism development in Bach Ma National Park, Vietnam. This study analysed data using structural equation modelling from 313 local residents living in adjacent communities surrounding the park. The results indicate that the support of local residents for nature-based tourism development in Bach Ma is significantly affected by their perceived positive and negative environmental, sociocultural, economic impacts, and community involvement. Perceived negative socio-cultural tourism impact was found to be stronger than others for the tourism support. Notably, perceived negative socio-cultural and positive economic and socio-cultural impacts were found to be mediators of the link between tourism development support and community involvement. The results of this study can be used to help with management implementations for encouraging local communities to involve themselves in and support the advancement of sustainable tourism in protected area destinations.

**Keywords:** *protected areas, community involvement, tourism impacts, sustainable tourism, Vietnam*

## Introduction

Nature-based tourism has a rapidly expanding and outstanding position in the global tourism industry, mostly taking place in protected areas (Balmford et al., 2009; Xu et al., 2009; Spenceley et al., 2015; Leung et al., 2018; Spenceley and Rylance, 2021). Nature-based tourism (NBT) can bring potential benefits for achieving sustainable development goals, particularly in developing countries (Leung et al., 2018; Dolezal et al., 2020; Spenceley and Rylance, 2021). Providing additional funds for nature protection is strongly advocated since it results in generating incomes, alternative livelihoods, and business opportunities, promoting local socioeconomic development, and reducing poverty in rural areas (An et al., 2018; Balmford et al., 2009; Long and Bui, 2020; Spenceley et al., 2015; Spenceley and Rylance, 2021; Thapa et al., 2022; Wardle et al., 2018; Xu et al., 2009). Nevertheless, NBT can negatively affect natural resources and the environment (Monz et al., 2013) and create negative impacts on communities (Thapa et al., 2022). Thereby, understanding the various impacts of NBT development in protected areas is crucial to design and implement effective plans and strategies, as well as ensure successful tourism development (Chung et al., 2018; Thapa et al., 2022; Wardle et al., 2018; Spenceley and Rylance, 2021).

In Vietnam, nature-based tourism is considered a potential strategy for economic growth and sustainable development (GoV, 2013, 2020) and has received strong attention from protected areas such as national parks (NPs) (An et al., 2019; Long and Bui, 2020). The importance of NBT development has been highlighted in biodiversity

conservation goals, protected area management, and socioeconomic development at both local and national levels (GoV, 2013, 2020; Long and Bui, 2020; Suntikul et al., 2010; An et al., 2018). NBT development is encouraged in a variety of ways by the Vietnamese government and authorities, private and public interests, domestic and international corporations, and local communities (Suntikul et al., 2010). Nevertheless, nature-based destinations as protected areas, including national parks (NPs), face significant challenges in tourism management and sustainable development when there is rapid and demand-driven tourism growth. Some of these challenges are due to a lack of tourism development plans, poor tourism infrastructure and services, a lack of stakeholder participation, and positive tourism impacts (Huong and Lee, 2017; An et al., 2018; Long and Bui, 2020). The tourism development process among protected areas has encountered numerous obstacles and constraints, particularly inadequate tourism services and the need for organisational restructuring adjustments (Long and Bui, 2020). Therefore, as a key stakeholder, considering the attitudes and perceptions of local residents and communities in rural areas associated with tourism in protected areas may provide comprehensive insights to encourage plausible protected area management, community, and tourism development policies and strategies (Nicholas et al., 2009; Lee, 2013; Dovers et al., 2015; Huong and Lee, 2017; Leung et al., 2018; Thapa et al., 2022).

The effects of tourism on local communities and inhabitants, community engagement, and community support for the advancement of tourism in protected regions have been the subject of extensive research using the approach of social exchange theory (Amuquandoh, 2010; McGehee and Andereck, 2004; Ap, 1992; Jurowski et al., 1997; Kumar and Hussain, 2014; Nicholas et al., 2009; Lee, 2013; Thapa et al., 2022). Unfortunately, only a few authors have conducted studies that examine relationships between tourism impact perceptions, community involvement, and support of local populations for NBT development in Vietnam's protected areas (Huong and Lee, 2017; Long and Kayat, 2011). Additionally, there is a scarcity of scholarly research concerning the tourism development of protected areas from the perspective of local communities residing in the mountainous and coastal regions of Central Vietnam, such as Bach Ma NP. To promote long-term growth and sustainability of tourism, it is important to consider the status of local communities as well as the factors that influence their support for NBT (Lee, 2013; Spenceley et al., 2015; Leung et al., 2018), specifically in protected areas where they are not isolated from the rest of the area (Chung et al., 2018).

To fill in some research gaps in the field of NBT in Vietnam, the aim of this research is to investigate the structural relationship between community involvement, perceived environmental, socio-cultural, and economic tourism impacts, and the support of the local residents who live around protected areas for NBT development. The study was conducted in Bach Ma National Park, a historical and significant national park in Central Vietnam. Our findings provide empirical evidence to understand insights into the status of communities and how tourism impacts local people, community participation, and the support of local populations living around national parks for NBT development, particularly within the context of developing countries. The findings are expected to make a valuable contribution to the strategizing, administration, and progress of wilderness areas and local communities, with a focus on social, environmental, and economic dimensions in the context of sustainable tourism development in developing countries.

## Literature review

### *Support of local people for tourism development*

Nature-based tourism refers to recreational activities that occur in natural areas, primarily within protected areas (Thapa et al., 2022; Leung et al., 2018; Spenceley et al., 2015). Due to its potential social, environmental, and economic benefits, NBT development has become a valuable pathway for conservation strategies, protected area management, and sustainable development goals (Long and Bui, 2020; Spenceley and Rylance, 2021; An et al., 2019; Balmford et al., 2009). Many developing countries, including Vietnam, strongly encourage stakeholders to develop tourism in protected areas (An et al., 2018; Long and Bui, 2020; Suntikul et al., 2010).

Moreover, the local community is recognized as a key stakeholder, playing a vital role in the success of biodiversity conservation and promoting effective management strategies for protected areas (Dovers et al., 2015), including tourism management (Leung et al., 2018; Spenceley et al., 2015; Xu et al., 2009). Understanding the socioeconomic context and status of local communities, as well as how NBT development in protected areas has impacted them, is crucial when fostering stakeholder involvement and support in the design, development, and application of policies towards sustainable tourism. Lee (2013) emphasized that understanding the support of local residents for the development of sustainable tourism is considered a pivotal element in the effective marketing and management of the tourism industry. More robust evidence of the support of local people for NBT development is required to improve effective management of protected areas and help with the long-term growth of sustainable tourism (Rasoolimanesh et al., 2017; Spenceley et al., 2015; Dovers et al., 2015; Xu et al., 2009). In this sense, the endorsement of tourism development by local inhabitants can be elucidated through the application of social exchange theory, which examines how local communities and individuals perceive the impacts of tourism (Stylidis et al., 2014; Jurowski et al., 1997; Ap, 1992).

### *Local people's perceived impacts and support of tourism development*

Since protected areas have become popular NBT destinations and attracted huge visitors (Balmford et al., 2009), the impacts of tourism in protected areas on local residents and communities and their perceptions have received increasingly attention (Thapa et al., 2022). Numerous researchers have used social exchange theory to understand how communities and individuals are reacting to the growth of tourism (Stylidis et al., 2014; Jurowski et al., 1997). Tourism can generate various impacts on local residents and communities, including environmental, economic, and socio-cultural changes (Amuquandoh, 2010; Badola et al., 2018; Long and Kayat, 2011; Nicholas et al., 2009). The tourism impacts can be considered in terms of positive and negative effects, or in terms of benefits and costs (Huong and Lee, 2017; Lee, 2013; Thapa et al., 2022; Long and Kayat, 2011). The views of residents on the effects of tourism are influenced by their own estimations of the costs and advantages of tourism, relative to the degree of NBT development, community involvement, and individual perceptions (Lee, 2013; McGehee and Andereck, 2004; Rasoolimanesh et al., 2017; Long and Kayat, 2011).

The tourism development of protected areas may result in multidimensional effects on local residents and communities in and around the areas. It can have beneficial effects on communities in terms of socio-cultural, environmental, and economic aspects

(Huong and Lee, 2017; Long and Kayat, 2011; Nicholas et al., 2009). NBT development can allow residents to benefit from economic (e.g., generated employment opportunities, a higher standard of living, increased wages, and taxes) (Kumar and Hussain, 2014; Long and Kayat, 2011; Rasoolimanesh et al., 2017), socio-cultural (e.g., improved quality of products and services, increased demand for leisure and entertainment activities, and cultural exchanges) (Lee, 2013; Long and Kayat, 2011), and environmental effects (e.g., raised environmental awareness, maintained natural resources, and ecosystem) (Amuquandoh, 2010; Long and Kayat, 2011; Wardle et al., 2018). Nevertheless, tourism can cause residents to suffer from economic (e.g., higher prices of goods and services, increased benefits to outside community organizations, and individuals) (Huong and Lee, 2017; Long and Kayat, 2011) and environmental issues (increased pollution, waste, and pressured landscapes) (Amuquandoh, 2010; Long and Kayat, 2011). Tourism impacts can lead to more benefits than costs to communities (Thapa et al., 2022). Due to the potential effects on communities, understanding the perceptions of local people and communities about perceived tourism impacts is vital to strengthening their participation and support in sustaining the management of protected areas as well as promoting sustainable development strategies.

The level of support of local residents and communities in protected areas for NBT development is influenced by whether they hold positive or negative perceptions regarding the generated impacts of tourism. Previous research showed that local people and communities in and surrounding protected areas will have more support for NBT development in NPs if they have a positive view of its effects (Huong and Lee, 2017; Nugroho and Numata, 2022; Rasoolimanesh et al., 2017). In Vietnam, rural residents and communities surrounding NPs are more inclined to support NBT development if they perceive the environmental and sociocultural advantages of tourism (Huong and Lee, 2017; Long and Kayat, 2011), while support for NBT development is less common among residents who perceive a greater number of adverse social and environmental impacts (Huong and Lee, 2017). In Cuc Phuong NP, Long and Kayat (2011) reported that the support of residents for tourism is positively correlated with their sense of negative environmental impacts. Perceived negative economic impacts insignificantly affect support for tourism in Ba Be NP (Huong and Lee, 2017). In order to gain a more comprehensive understanding of the concerns and experiences of local residents, as well as their support for tourism, it is necessary to gather additional empirical evidence in the context of protected areas and sustainable tourism in Vietnam. This provides insight into how strongly local residents support tourism development based on their perceptions of its positive or negative effects. However, local residents who perceive tourism's positive effects are more likely to support tourism development in protected areas, whereas those who perceive negative impacts are less likely to support tourism (Long and Kayat, 2011). Thereby, to address this research gap, relationships are following hypothesised that:

H1: Local community residents' perceived positive economic tourism impacts positively affect their support for nature-based tourism development;

H2: Local community residents' perceived positive socio-cultural impacts of nature-based tourism positively affect their support for nature-based tourism development;

H3: Local community residents' perceived positive environmental impacts of nature-based tourism positively affect their support for nature-based tourism development;

H4: Local community residents' perceived negative economic impacts of nature-based tourism negatively affect their support for nature-based tourism development;

H5: Local community residents' perceived negative socio-cultural impacts of nature-based tourism negatively affect their support for nature-based tourism development;

H6: Local community residents' perceived negative environmental impacts of nature-based tourism negatively affect their support for nature-based tourism development.

### ***Community involvement***

Community involvement is recognised as playing a vital role in effectively promoting protected area management (Dovers et al., 2015). It reflects the level of community engagement among residents in sharing their concerns with others in the area and significantly contributing to strategies of protected area management, sustainable tourism, and community development (Badola et al., 2018; Lee, 2013; Nugroho and Numata, 2022). In protected areas in Vietnam, local residents and communities are strongly encouraged to participate in NBT development (Suntikul et al., 2010); nevertheless, there is little evidence of relationships between community involvement, socio-cultural, environmental, economic tourism impacts, and the support of local people living around protected areas for NBT development. Therefore, the research contributes to a better understanding of community involvement through different tourism development concerns, particularly when each protected area has distinct concerns.

Previous studies also indicate that in protected area-based tourism destinations, engaging local residents and communities in the planning, administration, and decision-making processes acts to increase their support for the expansion of tourism (Lee, 2013; Nugroho and Numata, 2022; Wondirad and Ewnetu, 2019). Lee (2013) emphasised that the key to fostering tourism development is an expansion of community participation in the decision-making process regarding tourism-related activities. Thereby, it is hypothesised that:

H7: Community involvement positively affects local community residents' support for nature-based tourism development.

Furthermore, community involvement in tourism in protected areas can generate opportunities for communities, such as increased awareness about conservation and employment (Badola et al., 2018). Hence, local residents who perceive tourism's positive impacts are more likely to participate in tourism activities (Nugroho and Numata, 2022; Rasoolimanesh et al., 2017). Conversely, it is likely that individuals who perceive the negative effects of tourism will be less inclined to engage in tourism-related activities. In wetland areas, community participation significantly and positively affects perceived benefits, while it insignificantly and negatively affects perceived costs (Lee, 2013). To address this research gap, research hypotheses are suggested that:

H8: Community involvement positively affects local community residents' perceived positive economic impacts of nature-based tourism;

H9: Community involvement positively affects local community residents' perceived positive socio-cultural impacts of nature-based tourism;

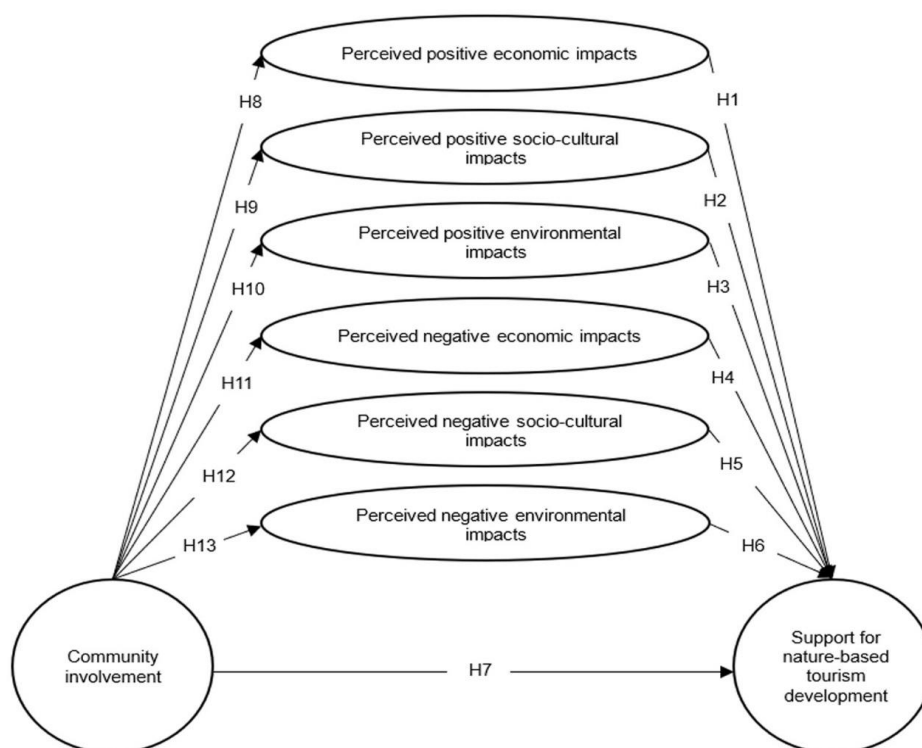
H10: Community involvement positively affects local community residents' perceived positive environmental impacts of nature-based tourism;

H11: Community involvement negatively affects local community residents' perceived negative economic impacts of nature-based tourism;

H12: Community involvement negatively affects local community residents' perceived negative socio-cultural impacts of nature-based tourism;

H13: Community involvement positively affects local community residents' perceived positive environmental impacts of nature-based tourism.

Based on formulating relationship hypotheses in the literature review, a conceptual model was illustrated for this study (*Figure 1.*). This research model was used to examine structural relationships between perceived positive and negative environmental, socio-cultural, economic tourism impacts, community involvement, and local resident support for NBT development in Vietnamese NPs.

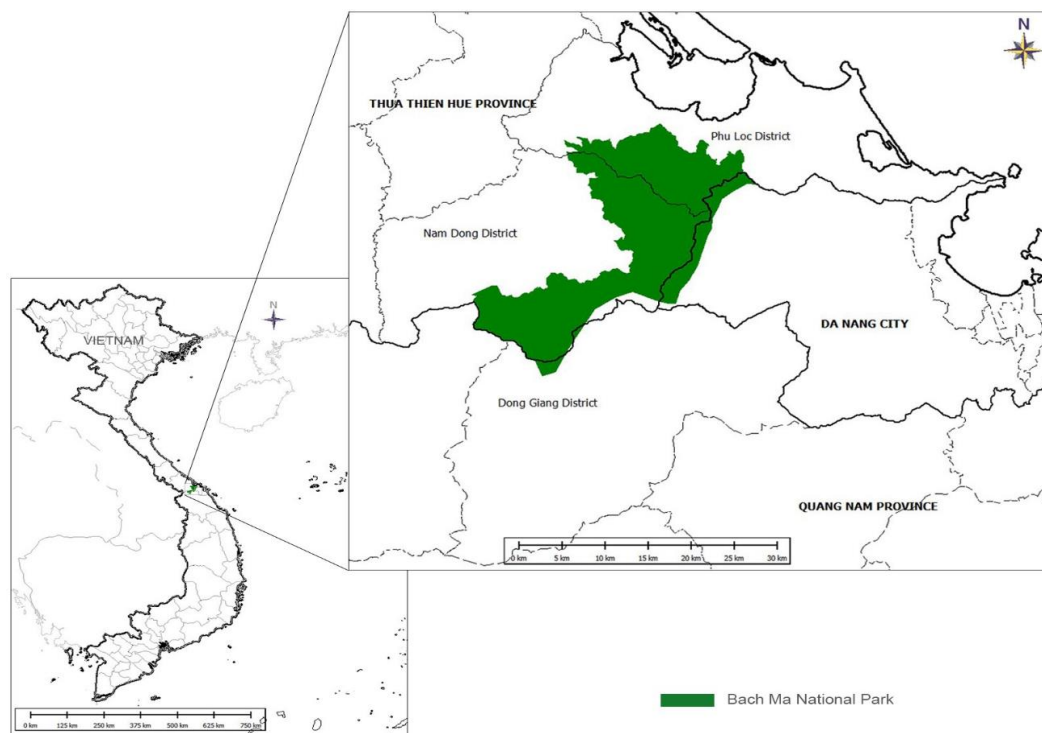


**Figure 1.** The study's proposed research model

## Material and methods

### Study area

The research site is Bach Ma National Park, which encompasses an area of 37,487 hectares and is situated in Central Vietnam (*Figure 2.*). Bach Ma NP is predominantly situated in Thua Thien Hue Province, accounting for 92% of its land, while the remaining 8% is within Quang Nam Province. The protected area was established in 1991 to significantly conserve biodiversity and forest landscapes in the country (BMNP, 2017). The BMNP buffer zone spans 58.676 ha and is situated in Dong Giang (Quang Nam Province), Nam Dong, and Phu Loc (Thua Thien Hue Province) districts. There are approximately 25,500 households (ca. 79,000 people) from dominantly Kinh (84.13%), and three ethnic groups of Cơ Tu (15.15%), Mường (0.04%), and Vân Kiều (0.68%) populations living in the buffer zone's 15 communes and towns (BMNP, 2017). The majority of local people living in buffer zones depend on farming and livestock-raising activities for their livelihoods. There are still a number of impoverished and sub-poverty households, mainly dependent on harvesting natural forest resources illegally.



**Figure 2.** *Bach Ma National Park*

Nevertheless, the absence of current strategies, particularly the failure to involve communities in sustainable tourism development and protected area management, may lead to insufficient management plans for protected areas (An et al., 2018). In particular, improper management of tourism development can have detrimental effects on protected areas and local communities (Chung et al., 2018; Monz et al., 2013; Thapa et al., 2022). Hence, a better understanding of the concerns of communities surrounding protected areas and encouraging their participation in NBT development in Bach Ma NP is crucial to promoting appropriate strategies for tourism management and sustainable development in the area.

### **Research instrument**

A quantitative research design was employed, utilizing a questionnaire survey to collect data for the investigation. The questionnaire consisted of two sections, one focusing on the sociodemographic characteristics of respondents (Section 1) and the other on their attitudes towards the development of nature-based tourism (Section 2). Section 1 covered inquiries pertaining to the demographic characteristics of respondents, including their gender, age, educational attainment, work status, and income level. Section 2 of the questionnaire consisted of 28 item statements, which were further divided into eight components. The 28 item statements were adapted from previous studies. More specifically, 3 items were used to measure perceived positive economic impact perceptions (Huong and Lee, 2017; Kumar and Hussain, 2014; Long and Kayat, 2011; Styliadis et al., 2014), 5 items were designed to measure positive socio-cultural impact perceptions (Huong and Lee, 2017; Lee, 2013; Long and Kayat, 2011), and 3 items were used to measure positive environmental impact perceptions (McGehee and Andereck, 2004; Amuquandoh, 2010; Huong and Lee, 2017; Rasoolimanesh et al.,

2017; Long and Kayat, 2011). For perceived negative impacts, 4 items were used to measure negative economic impact perceptions (Huong and Lee, 2017; McGehee and Andereck, 2004; Rasoolimanesh et al., 2017; Long and Kayat, 2011), 3 items were used to measure negative socio-cultural impact perceptions (Huong and Lee, 2017; McGehee and Andereck, 2004; Rasoolimanesh et al., 2017; Long and Kayat, 2011), and 3 items were used to measure negative environmental impact perceptions (Huong and Lee, 2017; McGehee and Andereck, 2004; Nugroho and Numata, 2022; Styliadis et al., 2014; Long and Kayat, 2011). Three items were used to measure the level of community involvement (Lee, 2013; Nicholas et al., 2009; Nugroho and Numata, 2022). The support of local residents for NBT development was measured by 4 items, which were adapted from Huong and Lee (2017), McGehee and Andereck (2004), and Long and Kayat (2011). Responses to the item statements in Section 2 were rated using a five-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree). Before conducting official surveys, a pilot test of the questionnaire was conducted by interviewing 21 local residents residing in various areas of the Bach Ma NP to validate the validity and reliability of the proposed items.

### ***Sampling and surveying***

Local residents living in Nam Dong and Phu Loc districts - buffer zones of Bach Ma NP, Thua Thien Hue Province were identified as major participants in the investigation of this study. According to the Thua Thien Hue Statistics Office (2021), 155,718 people were living in the two districts in 2020. Thereby, a sample size of 398 participants was intended for the study, accounting for a pre-established margin of error of 5% (Yamane, 1967). Inhabitants who had lived in the communes of the two districts around the park buffer zone for at least one year were selected to participate in the study by applying proportionally to the total number of households per commune.

Survey questionnaires were administered in person for the study. Between December 2021 and May 2022, the survey data was gathered. Local residents who are ready to provide information will be chosen to participate in the interview. 313 questionnaires were completed and used for analysis after excluding incomplete samples. The sample would be acceptable for a structural model analysis (Schumacker and Lomax, 2010; Hair et al., 2009).

### ***Data analysis***

IBM SPSS Statistic version 20.0 and AMOS version 20.0 were used to analyse the data. The Cronbach's alpha, Kaiser-Meyer-Olkin Measure (KMO), and Bartlett's test were performed before conducting the factor analysis. Utilising the principal axis technique with Promax rotation, exploratory factor analysis (EFA) was conducted to examine constructs. The study used confirmatory factor analysis (CFA) to check the measurement model by examining the fit, reliability, and validity of the constructs. The variables' factor loadings, composite reliability, extracted average variance, and discriminant validity were assessed. The structural equation model was used to examine the proposed research model and test relationship hypotheses. We used several suggested indices to check how well the measurement and structural models fit, e.g., the chi-square ( $\chi^2$ )/df ratio, the goodness-of-fit index (GFI), the comparative fit index (CFI), the adjusted goodness-of-fit index (AGFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA) values (Byrne, 2010; Hair et al., 2009; Schumacker and Lomax, 2010).



## Results

### *Respondents' sociodemographic characteristics*

A total of 313 respondents were surveyed, of which approximately 52% were male, while 48% were female (*Table 1.*). Most respondents were aged 41-50 years old (38.7%); only 1.3% of respondents were over 60 years old. It may indicate that the participants could reflect the socio-economic context as well as the tourism development of Bach Ma NP. Forty percent of the respondents obtained an advanced degree, such as a college or university diploma, whereas sixty percent had completed high school or less. Considering the occupations of the participants, it can be observed that those who are in business-related occupations or self-employment (31%) and farmers (24%) are the predominant groups in this survey. The majority of the participants earned less than VND 10,000,000 per month (81.2%), while 18.8% earned above VND 10,000,000 per month (approximately USD 340).

**Table 1.** Respondent's sociodemographic characteristics

Characteristics	Category	Frequency ( <i>N</i> = 313)	Percentage (%)
Sex	Female	150	47.9
	Male	163	52.1
Age	18 – 30	49	15.7
	31 – 40	104	33.2
	41 – 50	118	37.7
	51 – 60	38	12.1
	Above 60	4	1.3
Education	High school graduate or less	188	60.1
	College/university graduate or above	125	39.9
Occupation	Farmers	75	24.0
	Civil servants	38	12.1
	Education related	45	14.4
	Workers	40	12.8
	Business related/Self-employment	98	31.3
	Others	17	5.4
Monthly income (VND)*	Less than 5,000,000	82	26.2
	5,000,000-10,000,000	172	55.0
	10,000,000-15,000,000	38	12.1
	15,000,000 and above	21	6.7

Note: \*On June 27, 2022, the exchange rate between USD and the local currency was VND 23,248 = USD 1.0

### *Measurement and structural models*

The reliability and validity of construct items were evaluated using internal consistency. All constructs were found to be reliable, with their Cronbach's alpha values exceeding the threshold of 0.70 (Byrne, 2010) (*Table 2.*). The results of the Chi-Square value of 5030.468 from Bartlett's test ( $p < 0.05$ ) and the KMO value of 0.780 ( $>0.5$ ) indicated that the data are suitable for EFA analysis.

**Table 2.** Results of the measurement model

Variables	Mean	SD	FL	CA	CR	AVE
<i>Perceived positive economic impacts (PEC)</i>	4.01	0.590		0.793	0.796	0.566
(PEC1) Tourism has increased employment opportunities for local residents	4.03	0.627	0.697			
(PEC2) Tourism has contributed to improving the incomes and living standards of local residents	4.02	0.736	0.824			
(PEC3) Tourism has contributed to the improvement of local budgets, such as through tourism-related taxes	3.99	0.736	0.730			
<i>Perceived positive socio-cultural impacts (PSC)</i>	3.98	0.580		0.931	0.933	0.738
(PSC1) Tourism has increased demand for cultural and leisure activities	3.94	0.677	0.813			
(PSC2) Tourism has contributed to strengthening availability and expanding cultural and recreational activities	4.05	0.615	0.903			
(PSC3) Tourism has contributed to enhancing the quality of life for residents and communities in the area	4.00	0.633	0.930			
(PSC4) Tourism has contributed to improving the quality of products and services (e.g., restaurants, and hostels) in the area	3.95	0.689	0.766			
(PSC5) Tourism has increased interaction, cultural exchanges, and education between tourists and local residents	3.95	0.656	0.872			
<i>Perceived positive environmental impacts (PEN)</i>	3.57	0.687		0.853	0.855	0.664
(PEN1) Local residents' awareness of the environment and the conservation of natural resources have been enhanced as a result of tourism	3.58	0.769	0.893			
(PEN2) The development of infrastructure in the region (e.g., water supply and electricity) has been facilitated by tourism	3.56	0.791	0.791			
(PEN3) Tourism has contributed to the improvement of police forces by ensuring safety and a peaceful life for local residents	3.57	0.786	0.755			
<i>Perceived negative economic impacts (NEC)</i>	2.91	0.625		0.899	0.901	0.695
(NEC1) The development of tourism in protected areas disrupts the daily economic activities of local inhabitants	2.93	0.656	0.891			
(NEC2) Due to the expansion of tourism, the cost of a variety of products and services in the area has risen	2.89	0.736	0.789			
(NEC3) Only a small number of local community residents in the area gain income from tourism	2.88	0.712	0.817			
(NEC4) Tourism activities generate benefits that are ultimately retained by organisations and individuals from beyond the local community	2.93	0.748	0.835			
<i>Perceived negative socio-cultural impacts (NSC)</i>	2.38	0.851		0.843	0.846	0.647
(NSC1) Tourism has increased social problems in the area	2.39	0.958	0.830			
(NSC2) Tourism has changed the local traditional culture	2.39	1.053	0.762			
(NSC3) Conflicts between tourists and local residents have been raised by tourism	2.38	0.909	0.820			
<i>Perceived negative environmental impacts (NEN)</i>	3.58	0.858		0.872	0.876	0.703
(NEN1) Tourism has caused a disturbance of quiet	3.57	0.897	0.833			

Variables	Mean	SD	FL	CA	CR	AVE
and increased noise pollution in the area						
(NEN2) Tourism has increased significant waste in the area	3.66	1.056	0.813			
(NEN3) Tourism has increased pressure to destroy natural landscapes in and around the area or region	3.51	0.924	0.868			
<i>Community involvement (CIN)</i>	3.66	0.576		0.790	0.791	0.557
(CIN1) I actively participate in the community's tourism planning, administration, and decision-making processes	3.63	0.701	0.762			
(CIN2) I participate in protected area tourism planning, management, and decision-making	3.61	0.713	0.728			
(CIN3) I engage in activities related to tourism	3.74	0.644	0.749			
<i>Support for nature-based tourism development (STD)</i>	3.90	0.676		0.862	0.868	0.622
(STD1) Enhanced infrastructure provision to facilitate tourism development in the protected area ought to be a priority for the government and relevant authorities	3.85	0.864	0.789			
(STD2) I would advocate for the expansion of tourism-related initiatives within the area and community	3.92	0.848	0.747			
(STD3) I support tourism having a vital role in this community	3.78	0.850	0.874			
(STD4) Tourism benefits should be equitably distributed among local populations	4.06	0.627	0.738			

Note: SD = Standard deviation, FL = Factor loadings, CA = Cronbach's Alpha, CR = Composite reliability, AVE = Average variance extracted

Concerning tourism impacts perceived by local residents living around Bach Ma NP, the highest average ratings were found for positive economic impacts (4.01) and social-cultural impacts (3.98), indicating that these were the main perceived benefits (*Table 2.*). In the present study, the average score for positive impacts was 3.85, while the average score for negative impacts was 2.96, suggesting that the development of tourism in Bach Ma has created more positive impacts than negative impacts.

The CFA results indicated that the measurement model has fit indices of chi-square ( $\chi^2$ )/df ratio ( $\chi^2 = 522.306$ ,  $df = 322$ ,  $\chi^2/df = 1.622 < 3.0$ ), CFI = 0.958 ( $> 0.9$ ), GFI = 0.897 ( $> 0.8$ ), RMSEA = 0.045 ( $< 0.05$ ), and TLI = 0.951 ( $> 0.9$ ), suggesting an acceptable degree of model fitness (Hair et al., 2009; Schumacker and Lomax, 2010).

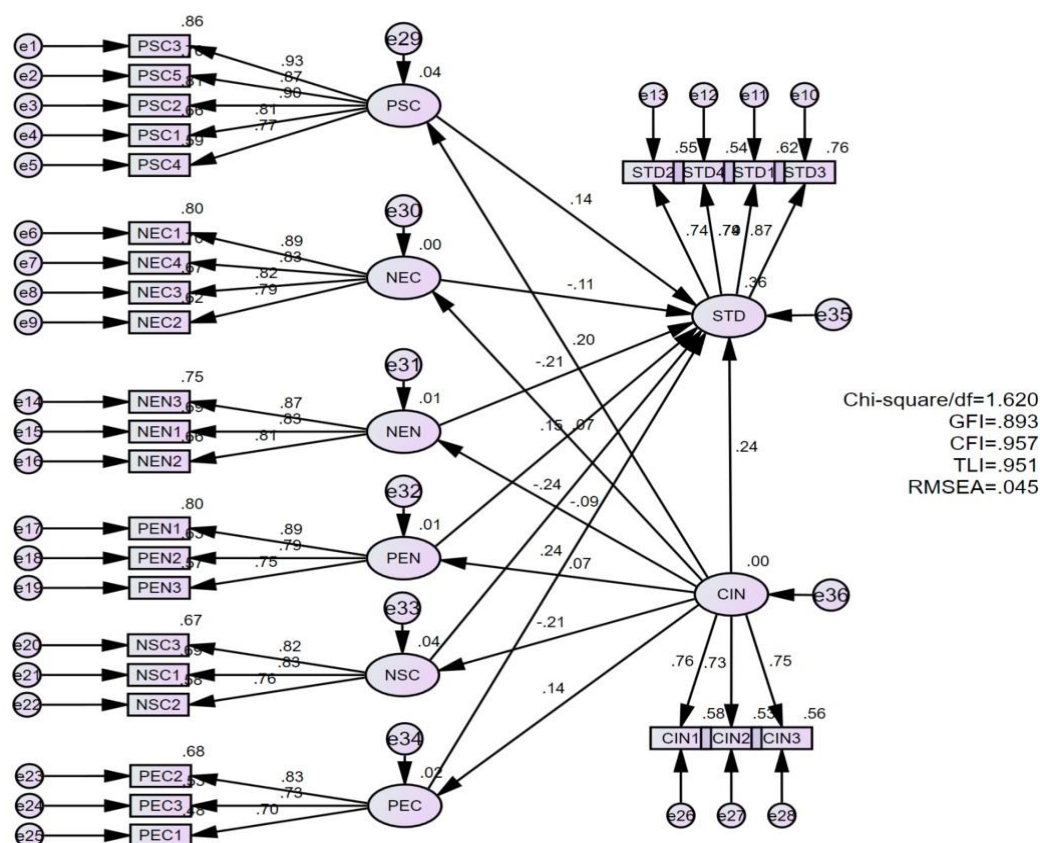
All standardised factor loadings of items displayed in *Table 2.* are higher than 0.5, indicating evidence of convergent validity with an acceptable model fit (Cheung et al., 2023). All of the average variance extracted values and composite reliability values were greater than 0.70 and 0.5, respectively. This shows that there is a good level of internal consistency and convergent validity (Fornell and Larcker, 1981; Byrne, 2010). Additionally, the correlations between the variables were less than the square root of the average variance extracted value (see *Table 3.*). This means that all latent variables met the criteria for discriminant validity (Hair et al., 2009).

The relationships between the variables were tested using structural equation model analysis. Fit indices were found to be the chi-square ( $\chi^2$ )/df ratio ( $\chi^2/df = 1.620 < 3.0$ ,  $p < 0.05$ ), CFI = 0.957 ( $> 0.9$ ), GFI = 0.893 ( $> 0.8$ ), AGFI = 0.872 ( $> 0.8$ ), TLI = 0.951 ( $> 0.9$ ), and RMSEA = 0.045 ( $< 0.05$ ) (*Figure 3.*), suggesting an acceptable level of model fitness (Schumacker and Lomax, 2010; Hair et al., 2009).

**Table 3.** Discriminant validity values of the research model

	PEC	PSC	NEC	STD	NEN	PEN	NSC	CIN
PEC	<b>0.752</b>							
PSC	0.012	<b>0.859</b>						
NEC	0.041	-0.104	<b>0.834</b>					
STD	0.284	0.266	-0.081	<b>0.789</b>				
NEN	-0.019	-0.077	-0.014	-0.250	<b>0.838</b>			
PEN	0.101	0.102	0.178	0.203	-0.022	<b>0.815</b>		
NSC	0.006	-0.160	0.052	-0.329	-0.005	-0.069	<b>0.805</b>	
CIN	0.137	0.189	0.074	0.370	-0.088	0.061	-0.203	<b>0.746</b>

Note: The square roots of extracted average variance values are presented in bold. CIN = Community involvement, NEC = Perceived negative economic impacts, NEN = Perceived negative environmental impacts, NSC = Perceived negative socio-cultural impacts, PEC = Perceived positive economic impacts, PEN = Perceived positive environmental impacts, PSC = Perceived positive socio-cultural impacts, STD = Support for nature-based tourism development



**Figure 3.** Results of structural path analysis for the research model

The path diagram representing structural relationships and tested hypotheses is given in Figure 3. and Table 4. The findings showed that rural residents' support for NBT development among local communities around Bach Ma National Park is significantly and positively influenced by the perceived positive environmental ( $\beta = 0.151, p < 0.01$ ), socio-cultural ( $\beta = 0.143, p < 0.05$ ), and economic ( $\beta = 0.239, p < 0.01$ ) impacts; thus, the hypotheses H1, H2, and H3 were supported. The perceived negative effects on the

economy ( $\beta = -0.109$ ,  $p < 0.1$ ), environment ( $\beta = -0.214$ ,  $p < 0.01$ ), and society and culture ( $\beta = -0.245$ ,  $p < 0.01$ ) had a negative and significant effect on support for NBT development. This indicates that the hypotheses H4, H5, and H6 were supported.

**Table 4.** Hypothesis testing results

Hypothesis	Standardized regression weights	<i>t</i> -value	<i>p</i> -value	Result
H1 PEC → STD	0.239	4.005	0.001***	Supported
H2 PSC → STD	0.143	2.572	0.010**	Supported
H3 PEN → STD	0.151	2.650	0.008***	Supported
H4 NEC → STD	-0.109	-1.960	0.050*	Supported
H5 NSC → STD	-0.245	-4.015	0.001***	Supported
H6 NEN → STD	-0.214	-3.781	0.001***	Supported
H7 CIN → STD	0.243	3.750	0.001***	Supported
H8 CIN → PEC	0.137	1.925	0.054*	Supported
H9 CIN → PSC	0.196	2.983	0.003***	Supported
H10 CIN → PEN	0.075	1.090	0.276 <sup>ns</sup>	Not supported
H11 CIN → NEC	0.069	1.034	0.301 <sup>ns</sup>	Not supported
H12 CIN → NSC	-0.207	-2.975	0.003***	Supported
H13 CIN → NEN	-0.091	-1.337	0.181 <sup>ns</sup>	Not supported

Note: \*, \*\*, \*\*\* identify statistical significance at  $p = 0.1$ ,  $0.05$ , and  $0.01$ , respectively; ns = not significant; CIN = Community involvement; NEC = Perceived negative economic impacts; NEN = Perceived negative environmental impacts; NSC = Perceived negative socio-cultural impacts; PEC = Perceived positive economic impacts; PEN = Perceived positive environmental impacts; PSC = Perceived positive socio-cultural impacts; STD = Support for nature-based tourism development

Support for NBT development among local residents in Bach Ma NP was positively and significantly influenced by community involvement ( $\beta = 0.243$ ,  $p < 0.01$ ), thus providing empirical support for hypothesis H7. Community involvement of local residents had a positive and significant effect on their positive socio-cultural ( $\beta = 0.196$ ,  $p < 0.01$ ) and economic ( $\beta = 0.137$ ,  $p < 0.1$ ) impacts; thus, the hypotheses H8 and H9 were supported. It is observed that community involvement has a negative and significant effect on the negative socio-cultural impacts of NBT perceived by the local residents ( $\beta = -0.207$ ,  $p < 0.01$ ); thus, the hypothesis H12 was supported. Nonetheless, residents' community involvement had a positive and insignificant effect on the perceived positive environmental impacts ( $\beta = 0.075$ ,  $p = 0.276$ ), a positive and insignificant effect on the perceived negative economic impacts ( $\beta = 0.069$ ,  $p = 0.301$ ), and a negative and insignificant effect on the perceived negative environmental impacts ( $\beta = -0.091$ ,  $p = 0.181$ ). Hence, the hypotheses H10, H11, and H13 were not supported.

## Discussion

Understanding the perceptions and views of local residents about the tourism development of protected areas and how they interact with protected areas is crucial to enhancing appropriate policy decisions and strategies for protected area management effectively and promoting sustainable development (Dovers et al., 2015; Chung et al., 2018; Nugroho and Numata, 2022). Our results indicated that the positive and negative environmental, socio-cultural, and economic tourism impacts perceived by local

residents affect their support for tourism development in Bach Ma NP. The results support the findings of previous scholars, who indicated that the support of residents and communities for tourism development is significantly and positively affected by perceived benefits and significantly and negatively affected by perceived costs (Jurowski et al., 1997; Lee, 2013; Long and Kayat, 2011; Nugroho and Numata, 2022; Stylidis et al., 2014). It is observed that more positive perceptions of the environmental, socio-cultural, and economic impacts of tourism lead to greater support from rural communities for NBT development. This is consistent with the findings of Nugroho and Numata (2022), who conducted research in protected areas in Indonesia. In the context of Vietnam, the results support previous studies (Long and Kayat, 2011; Huong and Lee, 2017), which showed that social, cultural, and environmental benefits are significantly positive factors for supporting tourism development in protected areas. The support for NBT development among local residents was more significantly influenced by their perceptions of the positive economic impacts as opposed to their perceptions of the positive socio-cultural or environmental impacts. This finding is in line with the results from previous studies (Nugroho and Numata, 2022; Stylidis et al., 2014). It suggests that tourism is considered a significant alternative livelihood for the local communities surrounding protected areas in Vietnam, particularly in the context of reducing forest dependency (e.g., illegal exploitation of forestry resources).

Moreover, the perceived negative impacts of NBT are significant negative factors in supporting NBT development. Similarly, previous studies (Lee, 2013; Nugroho and Numata, 2022) found a negative and significant effect of perceived costs on support. This is partially in line with Huong and Lee (2017), who showed a negative and significant effect of perceived social and environmental impacts on support for tourism development in Vietnam. The results are similar to some earlier research that showed how people and communities feel about the pros and cons of tourism and how it affects their support for tourism development, based on an explanation of the social exchange theory (Nugroho and Numata, 2022; Stylidis et al., 2014; Lee, 2013). However, among perceived tourism impacts, the support of local residents for nature-based tourism was stronger affected by the negative socio-cultural impacts. The finding supports the results from Nugroho and Numata (2022), who confirmed that perceived cost has a higher effect on the support of local communities for tourism development than the perceived benefits in protected areas in Indonesia. It is important to consider the context of tourism and destinations when evaluating the level of perceived impacts of tourism and the support of rural residents and communities for tourism development (Rasoolimanesh et al., 2017; Nugroho and Numata, 2022; Stylidis et al., 2014), particularly in the post-COVID-19 pandemic period.

Community involvement significantly and positively affected the support of local residents living around protected areas for NBT development. It corresponds with the findings from previous reports (Lee, 2013; Nugroho and Numata, 2022). If residents and communities are involved in planning and decision-making towards protected areas, as well as tourism activities, they tend to support the development of tourism. As mentioned in previous reports, protected area managers in Vietnam have increasingly encouraged tourism development to achieve potential benefits and sustainable development, of which local resident and community involvement is considered an important attraction factor in promoting the growth of tourism flows (An et al., 2018, 2019; Long and Bui, 2020). It is worth emphasising that it is required to establish tourism policy support effectively when enhancing community involvement in protected

area management, particularly in tourism planning and management (Nugroho and Numata, 2022).

Furthermore, positive socio-cultural and economic tourism impacts perceived by rural community residents in and around protected areas positively and significantly influenced community involvement. The finding is in line with the reports by Lee (2013) and Nugroho and Numata (2022), who indicated that community participation affects perceived tourism benefits. In contrast to the results from previous studies (Lee, 2013; Nugroho and Numata, 2022), our findings indicated that a negative and significant link exists between negative socio-cultural impacts and community involvement. The rapid expansion of tourism can have detrimental social and cultural impacts on local communities, such as altering the traditional values and norms of these people, especially those who belong to ethnic groups. In this context, local people may tend to participate less in tourism activities when they perceive negative changes. However, residents' capacity to adapt and respond may change the perceived negative effects of tourism (Nugroho and Numata, 2022). Our findings suggest that community involvement should be considered an effective predictor of the negative impacts of tourism development on rural residents and communities, particularly in the context of socio-cultural phenomena.

## Conclusion

This study provides evidence on tourism development in Bach Ma NP, Central Vietnam, by exploring relationships between positive and negative environmental, socio-cultural, and economic impacts perceived by local residents, community involvement, and support for nature-based tourism in protected areas. The study's findings showed that perceived positive and negative environmental, sociocultural, and economic effects have an impact on the support of local community members for NBT development around the protected area. Community involvement significantly and positively affected the support for the development of NBT. The positive economic, socio-cultural impacts and negative socio-cultural impacts of tourism perceived by communities were significantly linked to community involvement. The findings of this study contribute to the literature concerning NBT in protected areas located in developing countries.

The current study provides theoretical evidence regarding the relationships and magnitude of their impacts, drawing upon social exchange theory. Our present results indicated that the perceived negative socio-cultural impacts of tourism on rural community residents have a greater influence on their support for the development of tourism compared to the positive impacts. The results indicated that community involvement significantly and negatively affects the perceived negative socio-cultural impacts of tourism. The advantages and disadvantages of tourism perceived by residents mediated the extent to which individuals supported and participated in the development of the NBT.

The results suggest helpful information for policymakers and protected area managers in planning, monitoring, and implementing policies for the development and management of sustainable tourism in and around protected areas. By highlighting the perceived good effects of tourism, it encourages local residents and communities to promote their support for the growth of tourism in protected regions. The endorsement of local residents for the advancement of tourism is further bolstered by mitigating the

perceived adverse effects of tourism on residents residing near national parks. Planning and developing strategies for protected area management, tourism, and local communities should focus on leveraging perceived positive impacts, addressing the negative impacts of tourism on local communities, and taking advantage of the advantages of local populations. Therefore, local authorities and protected area managers should actively engage in propaganda and orientation in communities to promote positive impacts and respond to negative impacts in sustainable tourism development. Identified tourism activities should be emphasised to enhance the perceived positive impacts of tourism on local residents and communities, such as increasing job opportunities and cultural exchanges between tourists and ethnic communities. Encouraging communications and collaborations between national park managers, local communities, and other relative organisations involved in tourism activities can promote positive impacts on local populations and enhance support for tourism development in protected areas.

However, further investigation is needed to account for the several limitations of the research. This study only focused on local residents of adjacent communities surrounding Bach Ma NP in Thua Thien Hue Province. Additional local residents living in the park buffer zone in Dong Giang District, Quang Nam Province, should be interviewed about their views on tourism development, particularly when they are listed in Vietnam's National Programme for Sustainable Poverty Reduction from 2021–2025. It has been observed that a more representative sample should be conducted for further studies. A variety of local residents and communities' characteristics should be tested over time and circumstances (e.g., different types of ethnic groups, employment, policy, and geographical contexts). Further antecedents (e.g., quality-of-life, community attachment, place image, and community commitment) should be considered to inclusively explain the support of local residents and communities for NBT development in protected areas in developing countries.

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