

-RESEARCH ARTICLE-

SUSTAINABLE ECOTOURISM AND REGIONAL ECONOMIC COOPERATION FOR BORDER CITIES IN THE GREATER MEKONG SUBREGION UNDER THE BELT AND ROAD INITIATIVE

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—Abstract—

This study examines the role of ecotourism in advancing regional economic cooperation and sustainable development within the Greater Mekong Subregion (GMS), with a particular focus on the border cities of Xishuangbanna, China, and Luang Namtha, Laos. It explores how ecotourism facilitates cross-border trade, supports sustainable economic expansion, and addresses environmental and social challenges within the framework of the Belt and Road Initiative (BRI). A mixed-methods approach was adopted, comprising two phases. Phase 1 involved qualitative research through documentary analysis, in-depth interviews with 40 key informants from Xishuangbanna and Luang Namtha, and field observations. Phase 2 entailed a quantitative survey of 385 respondents to test hypotheses and identify key determinants of ecotourism development. Data analysis incorporated content analysis for qualitative data and regression analysis via SPSS for quantitative data. The findings indicate that ecotourism fosters economic growth by generating employment, promoting cross-border trade, and encouraging sustainable tourism practices. Nevertheless, challenges such as environmental degradation, policy fragmentation, and infrastructure deficiencies constrain its full potential. The study underscores the significance of local stakeholder participation and effective policy coordination in achieving sustainable ecotourism

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outcomes. By examining the nexus between ecotourism, regional cooperation, and the BRI, this research addresses a gap in the literature and provides valuable insights for policymakers, tourism practitioners, and local communities in the GMS. It offers practical recommendations to enhance the sustainability and economic benefits of ecotourism in border regions.

JEL Classification: L83, Q01, F15

Keywords: Ecotourism, Sustainable Development, Regional Cooperation, Greater Mekong Subregion, Belt and Road Initiative.

INTRODUCTION

Ecotourism is a form of sustainable tourism that emphasises the conservation of natural and cultural resources while fostering local community development (Aryantie et al., 2023). According to the International Ecotourism Society, "Ecotourism is responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education." It is increasingly regarded as a key strategy for sustainable development in biodiversity-rich regions. For instance, Costa Rica's ecotourism industry has become an international benchmark, generating over \$3.9 billion annually—contributing more than 3% to the country's GDP—and directly employing approximately 13% of the workforce (UNWTO, 2020). Globally, the ecotourism market was valued at USD 181.1 billion in 2019 and is projected to reach USD 333.8 billion by 2027, with a compound annual growth rate (CAGR) of 14.3%.

Ecotourism is widely utilised to promote sustainable development in ecologically rich areas. It supports local communities, safeguards the environment, and facilitates the exploration and dissemination of cultural and ecological heritage (Baloch et al., 2023). As a critical component of sustainable tourism, it aims to balance economic growth, environmental conservation, and social inclusion. By generating employment, fostering sustainability, and supporting local enterprises, ecotourism plays a crucial role in preserving natural ecosystems, enhancing community well-being, and alleviating poverty (Xu et al., 2023). In economically disadvantaged regions, particularly within the GMS, ecotourism can protect cultural and environmental resources while creating new economic opportunities (Nemoto, 2009). The GMS, encompassing Cambodia, China (Yunnan Province and Guangxi Zhuang Autonomous Region), Laos, Myanmar, Thailand, and Vietnam, plays a pivotal role in the Asia-Pacific due to its expanding trade networks, cultural diversity, and abundant natural resources (Ji, 2024). As a transboundary region connecting some of Asia's fastest-growing economies, the GMS is increasingly recognised as a hub for economic integration and sustainable tourism

development.

BRI, launched in 2013, is reshaping Asia, Africa, and Europe through economic cooperation, infrastructure expansion, and enhanced connectivity (Kunavut et al., 2018). Within the GMS, the BRI is expected to strengthen economic linkages, improve infrastructure, and facilitate trade and investment. The initiative aims to establish a terrestrial “Belt” of trade routes linking China to Central Asia, Europe, and beyond, alongside a maritime “Road” connecting China with the Middle East, Africa, and Southeast Asia (Coenen et al., 2021). The GMS recognises the BRI’s potential to accelerate economic growth, enhance regional cooperation, and integrate border cities into broader economic networks. However, given China’s economic predominance, GMS nations face both opportunities and challenges concerning sustainable development (Han & Song, 2022). Border cities within the GMS are particularly vulnerable to the effects of tourism and rapid urban expansion, raising uncertainties regarding the BRI’s influence on regional collaboration and ecotourism growth (Song & Wondirad, 2023). This underscores the urgent need for sustainable strategies that balance development with ecological and cultural preservation. Furthermore, the GMS’s strategic location within the Asia-Pacific presents a significant opportunity for cross-border ecotourism initiatives. By capitalising on its rich biodiversity, cultural heritage, and regional connectivity, the GMS has the potential to serve as a model for sustainable tourism development. However, the role of the BRI in fostering regional partnerships and advancing sustainable ecotourism in Asia remains a critical yet largely overlooked area of research.

Border cities within the GMS, such as Xishuangbanna in Yunnan, China, and Luang Namtha in northern Laos, serve as compelling case studies due to their strategic locations and significant potential as ecotourism destinations. These cities function as connectivity hubs under the BRI, addressing the demand for sustainable tourism while fostering regional economic development. Liu et al. (2022) highlight Xishuangbanna as an established centre for ecotourism, attributed to its diverse ethnic communities, tropical rainforests, and rich biodiversity. Similarly, Luang Namtha has witnessed a surge in ecotourism, driven by its natural landscapes and vibrant ethnic cultures, which facilitate cultural engagement and sustainable tourism, particularly given its proximity to the Laos-Myanmar and China borders (Roche, 2009). However, these urban centres face challenges linked to infrastructure expansion, environmental degradation, and cultural transformation, making them valuable case studies for examining sustainable development, regional cooperation, and ecotourism.

While the BRI has facilitated infrastructure improvements and trade expansion in the GMS, the role of ecotourism in fostering economic cooperation, particularly among border communities, remains underexplored. Existing research has extensively examined ecotourism at specific tourist sites and within national policy frameworks,

yet there is limited investigation into its capacity to drive cross-border regional collaboration (Ji et al., 2023). Although ecotourism is widely regarded as a sustainable alternative to mass tourism, little research has been conducted to support its integration into local economies, communities, and ecosystems in a way that ensures long-term sustainability (Khanra et al., 2021). While studies on sustainable development and regional economic partnerships recognise ecotourism's potential for the GMS, few have examined how it can be embedded within the region's broader development mechanisms. This research addresses that gap by exploring ecotourism's role in advancing regional cooperation. Given the economic interdependence between China and Laos, intracontinental investment in ecotourism is crucial for achieving sustainable and equitable development, particularly in the context of strategic investments under the BRI.

The persistent disparity in economic growth remains one of the most pressing challenges facing the GMS. Rapid expansion has exacerbated environmental concerns, including deforestation, inadequate waste management, and excessive resource exploitation. To mitigate these challenges, ecotourism must be carefully managed to prevent the degradation of fragile ecosystems. With the BRI facilitating large-scale infrastructure expansion, the enforcement of environmental regulations is essential to ensuring that ecotourism contributes to sustainable economic development without exacerbating social and environmental issues (Samal & Dash, 2023). The development of ecotourism in border cities is further constrained by legislative and environmental limitations. Although China and Laos actively promote ecotourism, conflicting national and local policies present significant obstacles to sustainability in the sector. Policy frameworks related to land use, environmental protection, and tourism management often fail to address the unique challenges of border regions, underscoring the need for more integrated and regionally coordinated approaches (Ji et al., 2023). The absence of a comprehensive governance framework results in fragmented and, at times, contradictory sustainability strategies across different levels of government in China. The BRI's emphasis on infrastructure development has led to policy implementation that does not always align with local sustainability priorities. This issue is further exacerbated by inadequate oversight of emerging local ecotourism enterprises and limited coordination between national and local authorities, hindering the achievement of regionally sustainable and equitable outcomes (Ahmad, 2014).

Building on these established challenges, this study investigates the extent to which ecotourism has contributed to sustainable development and transregional economic cooperation in the GMS, focusing on the border communities of Xishuangbanna, China, and Luang Namtha, Laos. It aims to provide insights into how ecotourism can enable these regions to address environmental and social challenges arising from both economic integration and cross-border trade under the BRI. The study evaluates the

economic, environmental, and cultural benefits of ecotourism, identifying key drivers, constraints, and policy implications for sustainable tourism within regional collaboration. Additionally, it examines the role of local stakeholders—including community organisations, tourism enterprises, and government officials—in shaping ecotourism practices and promoting long-term sustainability. A mixed-methods approach, combining qualitative and quantitative analysis, is employed to assess how ecotourism can foster regional economic growth while safeguarding cultural heritage and natural ecosystems.

This research holds both academic and practical significance. Academically, it expands the literature on ecotourism and regional economic cooperation by focusing on the GMS and other cross-border areas influenced by large-scale development initiatives such as the BRI. While prior studies have explored the economic and environmental impacts of ecotourism, its role in promoting regional cooperation remains underexamined. This study addresses this gap by specifically analysing the cases of Xishuangbanna and Luang Namtha, illustrating how ecotourism fosters economic partnerships in border cities. Practically, the study offers valuable insights for policymakers and ecotourism practitioners within the GMS. It identifies critical factors for successful ecotourism, including sustainable environmental practices, effective policy coordination, and active community participation. Understanding these dynamics is essential for balancing economic growth, environmental conservation, and cultural preservation. Furthermore, the study underscores the potential of the BRI, with its emphasis on infrastructure and regional connectivity, to function as a catalyst for ecotourism development in border areas while addressing the challenges of environmental degradation and uneven economic growth.

The paper is structured into six sections. The Introduction outlines the study's context, significance, and objectives. The Literature Review examines prior research on ecotourism, regional collaboration, and the BRI. The Methodology details the mixed-methods approach employed. The Findings present both qualitative and quantitative results. The Discussion explores the implications of these findings. Finally, the Conclusion summarises the study's contributions and proposes avenues for future research.

LITERATURE REVIEW

Ecotourism plays a crucial role in advancing sustainable development, particularly in biodiversity-rich regions such as the GMS. Responsible tourism fosters environmental conservation, enhances local community well-being, and promotes the appreciation of natural heritage. The GMS, comprising China, Cambodia, Laos, Myanmar, Thailand, and Vietnam, faces both economic opportunities and challenges under the BRI, which seeks to enhance global connectivity. While the BRI stimulates economic growth,

ecotourism offers a means to balance infrastructure expansion with environmental preservation. [Go et al. \(2020\)](#) highlight that ecotourism can contribute to poverty reduction, ecosystem protection, and local economic development. Achieving these objectives, however, necessitates strategic planning and international cooperation due to the ecological interdependence of GMS nations ([Han & Song, 2022](#)).

Collaboration among GMS countries is essential to maximising the economic benefits of ecotourism. The region's tropical forests, mountain ranges, and river systems provide significant ecotourism potential. However, environmental degradation, infrastructure deficiencies, and policy fragmentation pose significant obstacles ([Blanton et al., 2024](#)). For ecotourism to function as a viable economic strategy, it must be supported by sustainable business models that benefit both local communities and visitors, the promotion of shared cultural and natural resources, and enhanced regional connectivity. While the BRI has the potential to improve collaboration and infrastructure, large-scale projects often carry environmental consequences ([Schulhof et al., 2022](#)). To ensure that ecotourism contributes to the economic prosperity of border communities, the region must integrate sustainable tourism principles with BRI-driven infrastructure initiatives.

Incorporating ecotourism into the GMS's regional economic cooperation framework presents considerable challenges. Although ecotourism requires stringent environmental and social safeguards, the BRI has prioritised commercial and financial interests ([Go et al., 2020](#)). Research suggests that regional ecotourism initiatives in the GMS must overcome governance, economic, and environmental barriers to ensure equitable distribution of benefits ([Purnamawati et al., 2022](#)). Effective cross-border collaboration is essential for ensuring that tourism development remains economically viable, culturally respectful, and environmentally sustainable. Without integrated policies that actively involve local communities and stakeholders, ecotourism risks leading to environmental exploitation and social disparities ([Beall et al., 2021](#)). To achieve sustainable development, environmental protection, and economic growth in border cities within the BRI framework, GMS nations must adopt a more coordinated and policy-driven approach.

Ecotourism is increasingly recognised as a means of achieving sustainable development, particularly in regions with underutilised natural and cultural assets. By linking economic growth with conservation, ecotourism supports local communities while safeguarding their traditions and ecosystems. It has enabled developing nations, especially those in the GMS, to diversify their economies and reduce reliance on extractive industries ([Rasulov et al., 2022](#)). Moreover, ecotourism can mitigate cultural commodification and habitat degradation by fostering environmental awareness among both tourists and residents. However, the transboundary nature of the GMS poses challenges to inclusive planning and equitable economic benefit distribution. The expansion of ecotourism in the GMS is closely tied to the BRI, which has enhanced

infrastructure to promote economic integration and connectivity. While improved access to remote areas facilitates tourism, large-scale development projects may compromise ecological stability and social cohesion. Transportation infrastructure, including roads and railways, can disrupt ecosystems, jeopardising biodiversity and sustainable tourism efforts (Coenen et al., 2021). Additionally, increased connectivity may encourage mass tourism that disregards sustainability principles if regulatory frameworks remain weak or inconsistent. Addressing these risks requires complementary policies that align the BRI's economic objectives with the GMS's sustainability goals.

Cooperation among GMS nations is essential to maximising ecotourism's role in regional economic integration. The GMS Economic Cooperation Programme demonstrates how collaborative frameworks can enhance trade and infrastructure development (Yang et al., 2022). Integrating ecotourism into GMS economic strategies can enhance competitiveness while preserving environmental and cultural heritage. Achieving this requires comprehensive policies, cross-border knowledge exchange, and joint conservation funding (Ramaano, 2021). Equitable and sustainable community participation in decision-making processes ensures that ecotourism's economic benefits contribute to social welfare and poverty alleviation (He et al., 2021). By fostering inclusive strategies, the GMS can serve as a model for integrating ecotourism into regional development frameworks.

METHODOLOGY

This study investigated the role of ecotourism in fostering regional economic collaboration and development in border cities within the GMS under the BRI. A mixed-methods approach was employed, consisting of a qualitative analysis in Phase 1 followed by a quantitative assessment in Phase 2. This approach enabled a comprehensive understanding of the interplay between ecotourism and regional cooperation dynamics.

Phase 1: Qualitative Research

The qualitative phase gathered insights from participants involved in ecotourism projects and regional collaborations. Data were collected from the key border cities of Xishuangbanna in China and Luang Namtha in Laos, both significant hubs within the GMS and priority areas under the BRI. A purposive sampling approach was employed, selecting 40 key informants—20 from each city (Table 1). Interviewees included government tourism officials, ecotourism agency representatives, community leaders, local residents, and tourists. This sampling strategy incorporated diverse perspectives to ensure a comprehensive understanding of the phenomena under investigation (Marshall, 1996).

Table 1: Demographic Profile of Key Informants

Demographic Profile	Xishuangbanna (China)	Luang Namtha (Laos)	Total
Gender			
Male	12	10	22
Female	8	10	18
Age Range			
18–30	4	5	9
31–45	10	9	19
46–60	6	6	12
Occupation			
Government Tourism Official	5	5	10
Ecotourism Agency	5	5	10
Local Community Leader	1	1	2
Local Community Member	4	4	8
Tourist	5	5	10
Level of Involvement in Ecotourism			
High	10	9	19
Medium	6	7	13
Low	4	4	8
Years of Experience			
1–5 Years	8	10	18
6–10 Years	7	7	14
11+ Years	5	3	8

The qualitative research employed documentary analysis, participant observations, and in-depth interviews.

- 1) **Documentary Analysis:** This involved reviewing government regulations, ecotourism development plans, and regional cooperation agreements to identify institutional frameworks and policy measures influencing ecotourism. It also examined the BRI's impact on the region.
- 2) **In-depth Interviews:** Using an In-depth Interview Guideline (Table 2), interviews explored participants' experiences, perspectives, and recommendations regarding economic cooperation and ecotourism. Each interview lasted 40–60 minutes, with prior consent obtained from participants.
- 3) **Observations:** Field observations in both cities examined interactions between ecotourism agencies, communities, and tourists. Guided tours, community tourism initiatives, and stakeholder meetings were observed to assess ecotourism dynamics.

Qualitative data were analysed using content analysis via the Atlas.ti program. A thematic coding approach was applied to identify recurring patterns, key themes, and insights into the potential, challenges, and impacts of ecotourism in the GMS.

Table 2: Interview Guideline

Variable	Interview Questions
Ecotourism Development and Practices	<p>Can you describe the current state of ecotourism activities in this region?</p> <p>What are the main attractions or features that draw tourists here?</p> <p>How do local communities participate in or benefit from ecotourism initiatives?</p> <p>Are there specific policies or programs supporting ecotourism? How effective are they?</p>
Economic Impact of Ecotourism	<p>How has ecotourism contributed to local economic development, such as employment or business opportunities?</p> <p>Have you observed changes in economic conditions since ecotourism initiatives began?</p> <p>What challenges do local businesses face in benefiting from ecotourism?</p>
Regional Cooperation	<p>How has regional cooperation among GMS countries influenced ecotourism development?</p> <p>Can you provide examples of cross-border ecotourism projects or initiatives?</p> <p>What role does the Belt and Road Initiative play in facilitating regional connectivity for ecotourism?</p>
Belt and Road Initiative (BRI) Projects	<p>Are there specific BRI projects that have positively or negatively impacted ecotourism here?</p> <p>How do you think the BRI could further support sustainable ecotourism initiatives?</p>
Environmental and Social Sustainability	<p>What measures are being taken to ensure the environmental sustainability of ecotourism activities?</p> <p>Have there been any conflicts between tourism development and conservation efforts?</p> <p>How are local cultural practices and traditions incorporated into ecotourism?</p>
Challenges and Recommendations	<p>What are the main challenges facing ecotourism development in this region?</p> <p>How can these challenges be addressed through regional cooperation or community engagement?</p> <p>What recommendations do you have to improve the sustainability and economic impact of ecotourism?</p>

Phase 2: Quantitative Research

The quantitative phase validated the qualitative findings and analysed public perceptions and factors influencing ecotourism's role in GMS economic development. The target population included residents and stakeholders in Xishuangbanna and Luang Namtha with varying levels of ecotourism awareness and engagement. A structured

questionnaire was developed based on qualitative themes to ensure systematic data collection. The questionnaire commenced with an introduction outlining the study's objectives, confidentiality assurances, and completion instructions. It incorporated closed-ended questions and Likert scales to assess the BRI's influence on regional cooperation, ecotourism, and economic and social impacts.

To ensure validity, Item-Objective Congruence (IOC) with expert review was applied, requiring a minimum score of 0.8 for item inclusion. Additionally, a small pre-test involving 10% of respondents was conducted to assess clarity, relevance, and reliability. The sample size was determined using Cochran's formula (1977), ensuring robust and statistically reliable data for analysis. This formula is widely employed in survey research as it accounts for population variability and precision requirements (Uakarn et al., 2021).

The formula is given as:

$$n = \frac{Z^2 \cdot p \cdot (1 - p)}{e^2}$$

Where:

n = The sample size

Z = Z value at reliability level or significance level

Reliability level 95% or significance level 0.05; $z = 1.96$

Reliability level 99% or significance level 0.01; $z = 2.58$

p = The estimated proportion of the population that possesses the attribute of interest (if this is unknown, 0.5 is often used as it is the most conservative estimate)

e = The margin of error ($e=0.05$)

In this research, the population proportion (p) is unknown, and it is standard practice to use the most conservative estimate, assuming $p = 0.5$. This assumption provides the maximum possible sample size estimate, as the product of $p(1-p)$ reaches its highest value when $p = 0.5$. The formula then simplifies to:

$$n = \frac{Z^2 \cdot 0.5 \cdot 0.5}{e^2}$$

$$n = \frac{Z^2}{4e^2}$$

$$n = \frac{(1.96)^2}{4(0.05)^2} = 384.16$$

Where:

n = The sample size

p = The population proportions

e = Acceptable sampling error ($e=0.05$)

Z = Z value at reliability level or significance level.

Reliability level 95% or significance level 0.05; $z = 1.96$

Reliability level 99% or significance level 0.01; $z = 2.58$

This study collected a sample of 385 individuals, applying Cohen's technique to ensure generalisability. A stratified random sampling method was employed to reflect variations in age, gender, occupation, and tourism engagement. The quantitative phase validated the qualitative findings and explored public perceptions and factors influencing ecotourism's role in GMS economic growth. The target population comprised residents and stakeholders in Xishuangbanna and Luang Namtha with varying levels of ecotourism awareness and involvement. The structured survey, based on qualitative themes, assessed the BRI's impact on regional collaboration, ecotourism, and socio-economic outcomes using closed-ended questions and Likert scales.

To enhance validity, a small group of respondents pre-tested the questionnaire for clarity, relevance, and reliability before large-scale distribution. Both online and in-person surveys were conducted to accommodate accessibility preferences. The survey data was analysed using SPSS, with descriptive statistics used to present demographic trends. Regression analysis identified key drivers of ecotourism growth and examined relationships between economic development, ecotourism, and regional collaboration. The regression model included regional collaboration and policy support as independent variables, alongside economic growth and community development. This phase provided empirical evidence to support the qualitative findings and deepen the understanding of the research question.

FINDINGS

Qualitative Findings

The qualitative research in this study explored ecotourism's role in BRI-driven economic cooperation and growth within the GMS. Data were collected from key informants in Xishuangbanna (China) and Luang Namtha (Laos) through document analysis, in-depth interviews, and participant observations. This section examined the perspectives, attitudes, and experiences of non-governmental organisations, government officials, ecotourism operators, and local community leaders. The qualitative methods identified key factors influencing ecotourism development, its economic impact, and the challenges faced by local stakeholders. Additionally, the study assessed regional collaboration and the implications of the BRI. Content analysis of the data uncovered recurring themes and patterns, providing a contextual understanding of the critical issues affecting ecotourism in the region.

Theme 1: Economic Benefits of Ecotourism

The qualitative interviews and observations revealed that ecotourism has provided significant economic benefits to border villages in Xishuangbanna and Luang Namtha. Key informants in both locations highlighted its role in employment creation, cross-border trade, and income diversification. A recurring theme was the availability of stable employment, particularly in hospitality and tourism services. An ecotourism operator in Xishuangbanna noted that tourism had facilitated permanent jobs in hospitality and guiding services. Similarly, a local government official in Luang Namtha stated that tourism had generated supplementary employment in transportation and local guiding roles. This suggests that ecotourism provides economic alternatives in rural areas where employment opportunities are limited.

Beyond job creation, ecotourism has enhanced cross-border trade. Increased tourist inflows from neighbouring countries have expanded local markets, with foreign visitors purchasing locally made handicrafts, food, and souvenirs. A Luang Namtha businessman observed that tourism had introduced foreign currency, stimulated trade and benefiting local businesses. The Belt and Road Initiative's emphasis on connectivity and trade routes has further driven international tourism in both regions. Cross-border exchanges have become a crucial economic factor, and revenue diversification has strengthened local economies. Many residents who previously relied on agriculture or small-scale trade have transitioned to ecotourism-related activities. A former Xishuangbanna farmer, now an ecotourism guide, described how leading forest tours and selling local products had improved his financial stability. Likewise, a Luang Namtha community leader stated that ecotourism provided households with viable alternatives to agricultural work, increasing their resilience. The expansion of homestays and guided tours has reduced reliance on a single sector, contributing to economic stability and an improved quality of life for local communities.

Despite its economic benefits, informants identified several challenges associated with ecotourism's rapid expansion. One major issue was increased resource competition and rising living costs. A business owner in Xishuangbanna noted that while tourism had generated income, it had also driven up the costs of housing, food, and real estate, making it difficult for residents without initial tourism-related profits to cope. Similarly, Luang Namtha residents reported that the cost of living had risen alongside tourism expansion, creating disparities between those who benefited directly from ecotourism and those who did not. These findings highlight the complexity of ecotourism's economic impact and the need for careful management to ensure equitable distribution of benefits. Another key concern was the seasonality of ecotourism, which affected income stability. A government official in Luang Namtha pointed out that tourism peaked during specific seasons, leaving many businesses facing financial difficulties during the off-season. This seasonal volatility particularly impacted local guides and accommodation providers, whose earnings fluctuated throughout the year. While

ecotourism has introduced new income opportunities, its inconsistency poses financial risks for those who rely heavily on tourism-based livelihoods.

Theme 2: Environmental Challenges and Management

The qualitative findings on environmental issues and management in Xishuangbanna and Luang Namtha highlighted growing concerns over ecological degradation and the need for sustainable practices. Key informants in both locations identified tourism-related environmental challenges, particularly waste management. A local government official in Xishuangbanna noted that increased tourism had exacerbated waste disposal issues, stating, “Tourists leave plastic bottles, food wrappers, and other waste that our facilities cannot handle.” Similarly, an ecotourism operator in Luang Namtha reported significant plastic waste accumulation around rivers and waterfalls, making long-term waste management increasingly difficult. These findings underscore the strain tourism places on local waste management infrastructure, particularly in rural areas with limited capacity for disposal and recycling.

Deforestation also emerged as a critical concern, driven by land demand for hotels, roads, and other tourism infrastructure. A Xishuangbanna environmentalist warned that expanding tourism facilities in previously forested areas was accelerating biodiversity loss and soil erosion. A community leader in Luang Namtha similarly observed that growing ecotourism was leading to increased land conversion, adversely affecting local wildlife and forest ecosystems. These insights highlight the tension between economic development and environmental preservation, raising concerns about the long-term sustainability of current tourism-driven expansion. While ecotourism has provided economic benefits, it has also placed considerable pressure on fragile ecosystems, necessitating stronger conservation measures and more sustainable planning.

Both regions have adopted sustainable tourism practices to mitigate environmental challenges, with informants highlighting the growing importance of eco-friendly accommodations. A hotel manager in Xishuangbanna stated, “Our hotel has implemented eco-friendly practices, including waste recycling, reducing plastic usage, and utilising solar panels for water heating.” This approach aims to minimise environmental impact while promoting sustainable tourism. Similarly, an ecotourism operator in Luang Namtha noted collaborations with accommodation providers to ensure adherence to green building standards, incorporating water-saving technologies, locally sourced materials, and organic waste management. These environmentally conscious measures reflect the increasing commitment to sustainable ecotourism.

However, several informants pointed out financial constraints as a significant barrier to implementing sustainable technologies and practices on a broader scale. Stakeholders also emphasised the importance of responsible tourism through education and

awareness initiatives. A tour guide in Luang Namtha remarked, “We strive to educate tourists on environmental conservation and discourage littering,” further noting efforts to promote eco-friendly souvenirs produced by local businesses. A Xishuangbanna government official added, “We are currently developing awareness campaigns to inform both residents and visitors about reducing plastic consumption and advocating for sustainable alternatives.” Despite these initiatives, concerns remain regarding their long-term effectiveness in the absence of structural reforms and stronger environmental regulations. Many stakeholders stressed that sustainable tourism growth requires enhanced government support and collaboration with the private sector to ensure lasting environmental protection while maintaining economic benefits.

Theme 3: Cultural Integration and Community Engagement

The qualitative findings on cultural integration and community involvement indicate that ecotourism has significantly strengthened cultural ties between China and Laos while increasing local community participation in tourism. Key informants in both regions highlighted how ecotourism facilitates the exchange of cultural knowledge, practices, and traditions between tourists and local populations. A tour guide in Luang Namtha remarked, “Tourism has enabled us to share our traditional customs, such as local dances and festivals, with visitors from China and other countries.” He emphasised that tourists are drawn to these aspects of local life, creating opportunities for meaningful cultural engagement. Similarly, a government official in Xishuangbanna noted, “Ecotourism has deepened Chinese tourists’ understanding of Laos’ unique cultures, particularly in the border regions.” This cross-cultural exchange fosters appreciation and mutual respect while enhancing trade and tourism-related interactions.

These exchanges benefit both residents and visitors by reinforcing traditional customs and promoting cultural tolerance. Through ecotourism, local communities gain a platform to showcase their heritage, while tourists acquire a deeper appreciation of the cultural diversity within the Greater Mekong Subregion. The findings also highlight the role of cultural contact and local community involvement in ecotourism initiatives. Many interviewees emphasised that local populations actively create and manage ecotourism projects, particularly in rural areas. A village leader in Luang Namtha stated, “Our community has been involved in ecotourism from the beginning. We provide homestays, local guides, and traditional crafts to visitors. It has empowered us.” Similarly, a local business owner remarked, “We have collaborated to develop sustainable tourist attractions, such as cultural tours and nature walks, which not only generate income but also help preserve our cultural heritage.” Local participation in tourism has allowed communities greater control over how their culture and natural resources are presented to visitors. This approach also ensures a more equitable distribution of economic benefits among residents.

Ecotourism has further promoted cultural integration between China and Laos through cross-cultural events and collaborative tourism initiatives. Many respondents noted that cultural festivals and joint tourism projects strengthen cross-border cultural ties. A festival organiser in Xishuangbanna explained, “We host an annual cultural exchange festival that brings together tourists, artists, and performers from both sides of the border. It celebrates our shared heritage and fosters friendship between our nations.” Likewise, an ecotourism operator in Luang Namtha stated, “We frequently collaborate with Chinese tourism organisations to organise joint festivals featuring traditional music, dance, and cuisine.” These events serve to bridge cultural differences and create lasting experiences for both locals and tourists. Such festivals and activities enhance cultural exchange while highlighting the increasing demand for cross-cultural collaboration in ecotourism. Shared celebrations of traditions strengthen ties between neighbouring nations and foster greater cultural understanding among residents and visitors.

Additionally, community-driven cultural initiatives have revitalised enthusiasm for local customs. A cultural representative in Xishuangbanna observed, “Through ecotourism, we have revived traditional activities that were at risk of being lost, such as our indigenous music and dance.” These traditions have now been reintegrated into daily life and are gaining international recognition through tourism. By generating economic benefits, ecotourism has contributed to the preservation of historical traditions, reinforcing local cultural identity, particularly in marginalised areas. This demonstrates the potential for sustainable cultural tourism to balance economic development with the conservation of cultural heritage.

Theme 4: Policy and Governance Gaps

The qualitative findings revealed significant policy and governance challenges in Xishuangbanna and Luang Namtha, hindering national-local cooperation in tourism development. Key respondents from both regions highlighted inconsistencies between national ecotourism strategies and local implementation. A local government official in Xishuangbanna noted, “While national policies advocate for ecotourism, we frequently lack clear guidance or support at the local level.” Similarly, a community spokesperson in Luang Namtha stated, “There is a disconnect between national tourism policies and the tangible outcomes we can achieve.” These discrepancies often leave local authorities with limited resources and expertise, leading to fragmented and inefficient ecotourism programmes that fail to fully benefit local communities. Poor communication and coordination between national and local levels further exacerbate these issues, undermining the sustainability of ecotourism initiatives.

Respondents emphasised the need for a bottom-up, integrated approach to policy formulation to enhance cooperation and secure adequate funding. Many advocated for

national tourism strategies to align more closely with local conditions. A representative from a Xishuangbanna non-governmental organisation remarked, “A cohesive strategy is essential, requiring collaboration between national and local authorities, with local perspectives playing a central role in decision-making.” Involving local communities, who possess a deep understanding of their unique challenges, was deemed critical for effective policymaking. Additionally, respondents highlighted the importance of increased financial support for local tourism initiatives, particularly those promoting sustainability and community engagement. A Luang Namtha tourism operator commented, “Additional funding is needed to improve infrastructure, marketing, and training.” However, local businesses often face difficulties in securing investment for ecotourism projects, which require substantial capital. Stakeholders also suggested that private investors and international organisations could play a vital role in bridging funding gaps and ensuring the environmental and economic sustainability of ecotourism projects.

Theme 5: Infrastructure and Accessibility

Sources from both countries indicate that deficiencies in transportation and communication infrastructure have impeded cross-border tourism and trade. A transportation manager in Xishuangbanna remarked, “Despite the construction of new roads and bridges linking our region to Laos, transportation remains a significant bottleneck.” Many roads are in poor condition, and transport services are unreliable. Similarly, an ecotourism operator in Luang Namtha stated, “The absence of dependable transportation to remote tourist sites prevents visitors from fully experiencing local attractions.” During adverse weather conditions, many areas become inaccessible for much of the year. These transportation constraints discourage tourists from visiting isolated destinations, thereby limiting ecotourism’s economic potential. Consequently, tourism stakeholders have prioritised infrastructure enhancements to improve accessibility.

Informants also highlighted inconsistent internet and mobile network coverage in remote locations, which exacerbates the challenges posed by inadequate transport infrastructure. Local guides in Xishuangbanna noted, “Certain areas in our region experience weak mobile coverage and slow internet connectivity.” This lack of reliable communication services complicates tourists’ efforts to locate attractions, accommodation, and travel services. Furthermore, it hampers local businesses’ ability to market themselves effectively. In the digital age, sustaining an online presence and engaging with visitors are critical for ecotourism development. Thus, weak communication networks have further restricted ecotourism growth in remote regions. Concerns regarding physical infrastructure at tourism sites emerged due to accessibility and connectivity issues. Many respondents believed that ecotourism infrastructure, particularly in rural or pristine areas, was inadequate to accommodate a high volume of

visitors. A Luang Namtha ecotourism operator observed, “Although the region boasts breathtaking natural attractions, many lack essential amenities such as paved pathways, signage, and waste disposal systems to support tourism.” This deficiency diminishes the visitor experience. Similarly, a tour operator in Xishuangbanna stated, “Our most popular tourist sites, including protected forests and wildlife reserves, remain difficult to access due to poor road conditions and inadequate facilities.” Travel constraints limit visitor numbers, thereby reducing ecotourism’s economic potential, as many prospective tourists may avoid destinations that are hard to reach or insufficiently developed.

Key informants highlighted the need for infrastructure development and enhanced coordination between local and national governments to improve accessibility and connectivity. Many respondents supported efforts to establish well-maintained and accessible tourism destinations alongside improvements in transportation and communication networks. A Xishuangbanna administrative representative stated, “Tourism is fundamentally dependent on infrastructure. Without proper roads, bridges, and visitor facilities, the full potential of ecotourism cannot be realised.” Many interviewees also advocated for sustainable ecotourism development that balances infrastructure improvements with environmental conservation. These reforms could enhance the competitiveness of these regions as ecotourism destinations, attracting more visitors and bolstering local economies.

Quantitative Findings

Descriptive Statistics

Table 3 presents the descriptive statistics for the study’s key variables. The mean values ranged from 3.75 to 4.10, with ecotourism’s economic impact registering the highest mean (4.10), underscoring its perceived benefits. The BRI and regional collaboration also exhibited high means (3.90 and 4.05, respectively), indicating their influence on ecotourism development perceptions. Environmental and social sustainability criteria had a lower mean of 3.75, suggesting that while sustainability measures are recognised, improvements are necessary. The overall ecotourism sustainability score averaged 3.95, reflecting a generally positive but varied perception. All variables displayed modest standard deviations, indicating responses were closely clustered around the mean with minimal outliers. The highest values consistently approached 5.00, while the lowest ranged between 2.00 and 2.30, illustrating respondents’ diverse viewpoints. The measurement model’s reliability and validity were evaluated using Cronbach’s Alpha and factor loading analysis. The reliability assessment of the study’s key variables indicated strong internal consistency, with Cronbach’s alpha coefficients ranging from 0.85 to 0.91.

Table 3: Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum	N
Ecotourism Development and Practices	3.85	0.72	2.15	5.00	385
Regional Cooperation	3.90	0.68	2.50	5.00	385
Belt and Road Initiative (BRI)	4.05	0.65	2.85	5.00	385
Environmental and Social Sustainability Measures	3.75	0.96	2.00	5.00	385
Economic Impact of Ecotourism	4.10	0.70	2.00	5.00	385
Sustainability of Ecotourism	3.95	0.74	2.30	5.00	385

Correlation Analysis

Table 4 presents the correlation analysis of the study’s variables, revealing predominantly positive relationships. Correlation coefficients indicate that regional cooperation (RC), the BRI, environmental and social sustainability measures (ESSM), the economic impact of ecotourism (EIE), and the sustainability of ecotourism (SE) are positively associated with ecotourism development and practices (EDP), with coefficients ranging from 0.63 to 0.77. A strong correlation between ecotourism’s economic impact and sustainability (0.75**) suggests that greater recognition of its economic benefits enhances sustainability efforts. Additionally, the significant correlation between RC and BRI (0.76**) highlights their collective influence on ecotourism outcomes. These findings underscore the interconnectivity of key factors, suggesting that improvements in one area may drive progress in others.

Table 4: Correlation Analysis

Variable	EDP	RC	(BRI)	ESSM	EIE	SE
Ecotourism Development and Practices	1					
Regional Cooperation	0.74**	1				
Belt and Road Initiative (BRI)	0.68**	0.76**	1			
Environmental and Social Sustainability Measures	0.63**	0.72**	0.71**	1		
Economic Impact of Ecotourism	0.77**	0.79**	0.77**	0.79**	1	
Sustainability of Ecotourism	0.78**	0.75**	0.73**	0.77**	0.75**	1

Note: $p < 0.01$ indicates statistically significant correlations.

Regression Analysis

Table 5 presents the regression analysis results for the study’s independent and dependent variables. Hypothesis 1 (H1) examines the economic impact of ecotourism-on-ecotourism development and practices, revealing a strong positive relationship ($\beta = 0.52$, $t = 7.21$, $p < 0.001$). This suggests that ecotourism development initiatives significantly contribute to economic outcomes. Hypothesis 2 (H2) confirms a strong

positive association between regional cooperation and the economic impact of ecotourism ($\beta = 0.38$, $t = 5.14$, $p < 0.001$), indicating that enhanced regional collaboration strengthens ecotourism's economic contributions. These findings highlight the crucial role of ecotourism development initiatives and regional cooperation in shaping economic outcomes. Hypotheses 3 (H3) and 4 (H4) focus on ecotourism sustainability, particularly the influence of the BRI and environmental and social factors. Hypothesis 3 demonstrates a significant positive relationship between the BRI and ecotourism sustainability ($\beta = 0.45$, $t = 6.10$, $p < 0.001$), suggesting that the BRI strongly supports sustainable ecotourism practices. Hypothesis 4 confirms that environmental and social sustainability measures enhance sustainable ecotourism development ($\beta = 0.56$, $t = 8.23$, $p < 0.001$). These findings indicate that achieving long-term ecotourism success in Xishuangbanna and Luang Namtha requires prioritising environmental and social sustainability, alongside strategic initiatives and sustainable practices.

Table 5: Regression Analysis

Hypothesis	Variable	Beta Coefficient (β)	t-Value	p-Value	Significance
H1	Ecotourism Development and Practices on Economic Impact of Ecotourism	0.52	7.21	< 0.001	Significant
H2	Regional Cooperation on Economic Impact of Ecotourism	0.38	5.14	< 0.001	Significant
H3	Belt and Road Initiative (BRI) on Sustainability of Ecotourism	0.45	6.10	< 0.001	Significant
H4	Environmental and Social Sustainability Measures on Sustainability of Ecotourism	0.56	8.23	< 0.001	Significant

DISCUSSION

This study examines the impact of ecotourism on the economic development of border villages in the Greater Mekong Subregion within the context of the Belt and Road Initiative (BRI). It investigates the interplay between the BRI, sustainability, regional collaboration, and ecotourism development, focusing on the regions of Xishuangbanna and Luang Namtha. Employing a mixed-methods approach, the research highlights how ecotourism contributes to local economic growth, diversification, and employment generation. Findings align with existing literature, such as [Samdin et al. \(2022\)](#), which underscores ecotourism's role in increasing revenue, creating jobs, and diversifying local economies. Qualitative data reveal that improvements in related sectors, including hospitality and support services, have enhanced economic stability and community empowerment in both regions. A key informant noted, "Ecotourism has enabled the creation of stable employment opportunities in our community's hospitality and guiding sectors," indicating its potential to foster local development ([Beall et al., 2021](#)).

Economic theories further suggest that ecotourism, when effectively implemented, can stimulate regional economies and support local businesses.

The study also emphasises the role of China-Laos cross-border cooperation in advancing ecotourism in Xishuangbanna and Luang Namtha. Research by [Hafezi et al. \(2023\)](#) supports the notion that regional collaboration enhances border trade and tourism. Qualitative interviews reveal that shared cultural and natural resources strengthen such partnerships. One expert stated, “The collaboration between local governments in Xishuangbanna and Luang Namtha has enabled resource sharing and improved tourist attractions, boosting our economy.” This demonstrates how regional cooperation can amplify tourism development in border areas ([Thompson, 2022](#)). Additionally, this partnership has fostered advancements in infrastructure, education, and local service industries, which are essential for achieving long-term prosperity.

However, the study identified social and environmental challenges affecting ecotourism. While ecotourism contributes to economic growth, it also places significant pressure on local ecosystems and resources, particularly in ecologically sensitive border regions such as Xishuangbanna and Luang Namtha. The study’s qualitative and quantitative analyses highlight the critical role of environmental sustainability in realising ecotourism’s potential. The regression analysis confirmed this, with a beta coefficient of 0.56 ($p < 0.001$), indicating that environmental and social sustainability measures significantly influence ecotourism sustainability. Key informants expressed concerns regarding natural resource depletion, inadequate waste management, and deforestation as tourism expands. One respondent noted, “The rapid growth of tourism is beginning to negatively impact our forests, necessitating the adoption of more sustainable practices to protect our natural heritage.” These concerns align with broader research findings on the challenges of maintaining environmental integrity amid increasing tourist demand. Sustainable accommodation, improved waste management, and conservation efforts are necessary to mitigate tourism’s environmental impact.

The BRI has played a pivotal role in sustaining ecotourism by enhancing infrastructure and economic development within the Greater Mekong Subregion. The regression analysis revealed a strong positive relationship between the BRI and ecotourism sustainability. Experts suggest that the BRI enhances regional connectivity, cross-border trade, and infrastructure development, all of which are crucial for ecotourism growth ([Ramaano, 2021](#)). Key informants reported that the BRI has significantly improved transportation infrastructure in Xishuangbanna and Luang Namtha through the construction of new roads, bridges, and transport linkages. Many observed, “The new bridges and roads have facilitated tourist access to remote areas, improving the accessibility and sustainability of ecotourism.” These infrastructural advancements have not only enhanced visitor accessibility but have also stimulated trade and investment, benefiting border communities and ecotourism initiatives. Despite these

improvements, sustainable ecotourism development requires effective environmental management and community engagement to ensure the long-term preservation of local ecosystems.

Despite these advancements, the study identified legislative and governance challenges that constrain the region's ecotourism potential. Both qualitative and quantitative findings highlight ineffective national-local collaboration and fragmented policymaking. Qualitative data indicate that local governments in both regions often operate independently of national directives, leading to inefficiencies in ecotourism planning. A local government representative stated, "The implementation of effective ecotourism policies is frequently hindered by a lack of essential resources and guidance from higher authorities." This aligns with [Salman and Mohamad's \(2020\)](#) argument that regional ecotourism initiatives require policy coordination. The quantitative analysis further confirmed a strong correlation between policy support and the effectiveness of ecotourism development. To foster sustainable ecotourism, national and local stakeholders must enhance cooperation and policy alignment.

The study also underscored the necessity of community involvement in ecotourism development. Qualitative findings revealed that local engagement is vital for ensuring equitable distribution of tourism revenue and safeguarding traditional practices. Respondents from both regions concurred that local communities should play a central role in tourism-related decision-making. A key informant stated, "Tourism ventures require local participation to remain viable. Integrating communities from the outset ensures their needs are met while preserving their cultural heritage." These findings align with community-based ecotourism research, which stresses the importance of local empowerment for long-term sustainability ([Hatma Indra Jaya et al., 2024](#)). The study found that strong local ownership and accountability significantly contribute to the success of ecotourism initiatives. When communities are actively involved, ecotourism is more effective in addressing environmental, social, and cultural concerns.

Furthermore, the study demonstrated that ecotourism is influenced by economic, social, and environmental factors. Regression analysis confirmed a strong relationship between ecotourism's economic benefits, regional cooperation, and development strategies. Long-term sustainability, however, depends on balancing environmental and social sustainability considerations. This supports the broader perspective that sustainable tourism must integrate economic, social, and environmental priorities ([Zhang et al., 2024](#)). The report suggests that strengthening community participation, improving infrastructure, and implementing effective legislative measures can enhance ecotourism sustainability. Literature further supports that for ecotourism to remain viable, it must preserve cultural heritage, protect the environment, and benefit local populations. The research highlights the necessity of an ecotourism development strategy that accounts

for local ecosystems, regional cooperation, and geopolitical factors such as the Belt and Road Initiative.

CONCLUSION

This study highlights the significant role of ecotourism in the border cities of the GMS in promoting regional economic cooperation, environmental sustainability, and community development under the BRI framework. The findings indicate that ecotourism stimulates economic growth by diversifying income sources, generating employment, and enhancing cross-border trade, particularly between China and Laos. However, sustaining these economic benefits necessitates robust practices and adequate supporting infrastructure. The study underscores ecotourism's effectiveness in fostering regional economic growth through job creation, trade facilitation, and income diversification. It also emphasises its importance in preserving cultural heritage and encouraging local participation in decision-making processes. Despite these benefits, significant challenges such as environmental degradation, deforestation, and waste management issues were identified, requiring urgent and collaborative solutions.

A limitation of this study is its focus on two border cities, Xishuangbanna in China and Luang Namtha in Laos, which may restrict the generalisability of the findings to other GMS regions. Furthermore, while the mixed-methods approach provides comprehensive insights, longitudinal studies could offer a deeper understanding of the evolving impacts of ecotourism over time.

Future research should explore several key areas to enhance the understanding of ecotourism in the GMS. Comparative analyses of ecotourism models across multiple GMS countries could help identify best practices and scalable strategies for sustainable tourism development. Additionally, examining the long-term effects of BRI infrastructure projects on regional ecotourism sustainability could provide valuable insights. Research could also investigate cross-border collaboration mechanisms that strengthen ecotourism's role in fostering regional integration and sustainable development. By addressing these areas, future studies can contribute to establishing ecotourism as a transformative tool for achieving sustainable growth in the GMS, aligned with the economic, environmental, and socio-cultural goals of the BRI framework.

THEORETICAL AND PRACTICAL IMPLICATIONS

This study highlights the influence of the BRI on the development and management of ecotourism in the GMS. It underscores the importance of regional collaboration in maximising the economic benefits of ecotourism. The findings suggest that cross-border cooperation between China and Laos can enhance infrastructure, attract tourists,

and promote cultural exchange. These insights are valuable for policymakers in both nations, as they can inform the creation of bilateral agreements and collaborative ecotourism initiatives to capitalise on international tourism. The study also stresses the need for sustainable tourism infrastructure that balances tourism development with environmental conservation and the well-being of local communities. To mitigate tourism's environmental impact and ensure long-term sustainability, governments should invest in sustainable transportation networks, waste management systems, and eco-friendly infrastructure.

The research provides critical insights for ecotourism policy formulation and implementation. It identifies significant gaps in policy coordination between national and local authorities, which hinder the effective execution of ecotourism programmes. Disjointed policies and poor intergovernmental coordination often lead to inefficient resource allocation, limited funding, and project delays. To address these challenges, policymakers should establish clear frameworks for national-local collaboration and integrate ecotourism policies with broader sustainable development goals. The study also emphasises the importance of involving local communities in decision-making processes. Empowering local stakeholders and enhancing their participation can improve the sustainability of ecotourism initiatives. Policymakers should prioritise training and capacity-building programmes to equip local communities with the skills needed for tourism planning and management.

The study's findings contribute to theoretical discussions on sustainability in ecotourism development. It challenges the conventional view of ecotourism as solely an economic or environmental concern by demonstrating the interconnectedness of environmental, social, and economic factors. The research shows that incorporating sustainability indicators enhances the long-term viability of ecotourism, reinforcing the principles of sustainable tourism. It highlights the need to balance economic growth, social equity, and environmental preservation, offering a more comprehensive framework for sustainable tourism models. Additionally, the study advances theoretical understanding of how global initiatives like the BRI can influence regional ecotourism. It illustrates the BRI's potential to foster infrastructure development and regional cooperation, creating new opportunities for ecotourism. This finding expands the scope of research on the intersection of local tourism practices and global development frameworks. Future studies could explore how other international development initiatives and regional collaborations impact border ecotourism, as well as the role of public-private partnerships in promoting sustainable tourism in the GMS.

From a practical perspective, the study offers valuable recommendations for ecotourism management. It highlights the importance of integrating sustainable practices, such as energy efficiency, environmental conservation, and waste management, into ecotourism operations. Ecotourism providers are encouraged to adopt measures like water-saving

technologies, waste reduction strategies, and solar-powered equipment to minimise environmental impact. The research also underscores the significance of local community involvement in delivering authentic and culturally rich experiences for tourists. Building strong relationships with local communities ensures that ecotourism benefits are equitably distributed, fostering economic and cultural gains for host populations. By aligning their operations with the study's recommendations, ecotourism operators can strengthen partnerships with regional and local governments, secure funding, and enhance their contribution to environmental and economic objectives.

The findings of this study have broader implications for ecotourism development in the GMS and other marginal regions. As global tourism continues to grow, there is increasing demand for sustainable development practices that minimise environmental and social impacts while maximising economic benefits. This research provides a framework for understanding how regional collaboration, policy harmonisation, and sustainability initiatives can enhance the sustainability and inclusivity of ecotourism. Policymakers, tourism planners, and stakeholders in other regions facing similar challenges can draw lessons from the experiences of Xishuangbanna and Luang Namtha. The study advocates for a holistic approach to tourism development in border regions, one that integrates economic growth, environmental protection, and cultural exchange. By advancing both theoretical understanding and practical strategies, this research contributes to the global expansion of sustainable and inclusive tourism models.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This study highlights the role of ecotourism in fostering economic growth and regional cooperation in the GMS, while also acknowledging its limitations. A key constraint is its focus on only two border cities, Luang Namtha and Xishuangbanna. Although these cities serve as significant examples within the BRI framework, the findings may not fully represent the broader GMS or other transnational regions. Future research could address this limitation by incorporating a wider range of border communities, enabling a more comprehensive understanding of ecotourism and regional cooperation across diverse contexts. Detailed case studies could help identify regional variations and examine how local factors, such as cultural diversity and economic conditions, influence the success of ecotourism programmes. Expanding the sample size would also enhance the generalisability of the findings, allowing researchers to determine whether the trends observed in this study are consistent across other border regions.

Another limitation lies in the study's qualitative methodology, which relied on documentary analysis, in-depth interviews, and observations. While these methods provided valuable insights, the reliance on key informants may have introduced bias, as their perspectives may not fully reflect the views of local communities or smaller

stakeholders, such as lower-tier tourists. To address this, future research could employ a more diverse range of data collection methods, including surveys and focus groups involving residents and tourists. Longitudinal studies could also provide deeper insights into the long-term impacts of ecotourism and regional collaboration on local communities. By incorporating multiple perspectives and methodologies, future studies can offer a more nuanced understanding of ecotourism's effects.

The study's quantitative component also has limitations. The use of cross-sectional surveys restricts the ability to establish causal relationships, as data were collected at a single point in time. While regression analysis identified correlations, it could not determine causality. To overcome this, future research could adopt longitudinal or experimental designs to explore the causal links between economic impacts, regional cooperation, and ecotourism development. Investigating temporal changes in the effects of specific policies or projects could yield more robust findings. Additionally, expanding the sample to include a broader range of stakeholders, such as ecotourism business owners, government officials, and tourists, would provide a more comprehensive understanding of regional ecotourism dynamics.

While much of the existing research on ecotourism has focused on economic and environmental dimensions, this study highlights the need to explore its social and cultural impacts. The findings touch on cultural exchange and community engagement but leave gaps in understanding how ecotourism affects social cohesion, local traditions, and cultural identity. Future research could investigate the role of ecotourism in preserving Indigenous knowledge, promoting cultural heritage, and fostering social interactions. Gender dynamics in ecotourism, particularly in contexts where women have been marginalised, also warrant further exploration. Addressing these issues would enhance understanding of ecotourism's potential to drive social sustainability and cultural transformation in local communities.

Finally, future studies could examine how international agreements and private sector involvement, such as foreign travel companies and non-governmental organisations, contribute to the BRI's sustainable ecotourism goals. Analysing the interplay between local, national, and international policies could reveal new strategies for enhancing the sustainability and inclusivity of ecotourism in transboundary regions like the GMS. Such research would provide valuable insights for policymakers and practitioners, helping them navigate the complexities of global tourism within the frameworks of regional cooperation and sustainability. By addressing these gaps, future studies can contribute to the development of more equitable and sustainable ecotourism models in the GMS and beyond.

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ETHICAL STANDARDS FOR HUMAN RESEARCH

This study was approved by the Human Research Ethics Committee, Khon Kaen University, which has been certified as a human research project subjected to exemption consideration according to Khon Kaen University Record No.4.3.03: 13/2567, Reference No. HE673109, according to the records of the Office of the President Office, Center for Human Research Ethics, Khon Kaen University, with KKU Institutional Review Board Number IRB00012791, dated 25 April 2024.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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