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A Study on the Status of Ecotourism Development in the Binh-Tri-Thien Region, Vietnam

DOCTORAL DISSERTATION

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I GOSPODARKA PRZESTRZENNA

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Studium rozwoju ekoturystyki w regionie Binh-Tri-Thien, Wietnam

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Abstract

This dissertation examines the development of ecotourism in the Binh-Tri-Thien (BTT) region, Vietnam, within the broader framework of sustainable tourism and regional development. Given the increasing global interest in ecotourism as a means to promote environmental conservation and socio-economic benefits, this research aims to assess the current state of ecotourism in the BTT region, identify key challenges and opportunities, and propose viable strategies for sustainable development. The study integrates theoretical and empirical approaches to offer a comprehensive understanding of ecotourism in this context.

The primary objective of this study is to evaluate the status of ecotourism development in the BTT region and formulate strategic pathways for its sustainable growth. This research is grounded in a robust methodological framework combining quantitative and qualitative approaches. A triangulation method is used to ensure the reliability and depth of findings. Primary data is collected through field surveys, interviews, and statistical analysis, while secondary data includes policy documents, tourism statistics, and academic literature. The study employs various research tools such as surveys, interview questionnaires, and statistical software to analyze data, ensuring a comprehensive and objective assessment of ecotourism development in the BTT region.

The study reviews the evolution of ecotourism concepts and their practical applications, emphasizing the role of sustainable tourism within the regional development framework. The dissertation provides an overview of Vietnam's tourism, highlighting internal and external factors influencing ecotourism development in the BTT region, such as infrastructure, governance, and socio-economic dynamics. Addionally, field studies reveal insights into tourist behavior, satisfaction levels, and local community engagement in ecotourism. The study also identifies key factors affecting ecotourism growth, such as environmental awareness, policy implementation, and economic viability. Finally, based on a SWOT/TOWS analysis, the study proposes strategic solutions for sustainable ecotourism development in the BTT region.

This dissertation contributes to both academic and practical discussions on ecotourism development. By providing a detailed analysis of the BTT region, it offers valuable insights for policymakers, tourism stakeholders, and researchers. While the study highlights key achievements, it also acknowledges limitations and suggests directions for future research.

Streszczenie

Niniejsza praca doktorska analizuje rozwój ekoturystyki w regionie Binh-Tri-Thien (BTT) w Wietnamie, ujmując go w szerszym kontekście zrównoważonej turystyki oraz rozwoju regionalnego. W obliczu rosnącego globalnego zainteresowania ekoturystyką jako narzędziem służącym ochronie środowiska i generowaniu korzyści społeczno-gospodarczych, celem badania jest ocena obecnego stanu ekoturystyki w regionie BTT, identyfikacja kluczowych wyzwań i szans rozwojowych, a także sformułowanie realistycznych strategii na rzecz jej zrównoważonego rozwoju. Praca łączy podejścia teoretyczne i empiryczne, dążąc do całościowego zrozumienia zjawiska ekoturystyki w analizowanym kontekście.

Głównym celem badania jest ocena poziomu rozwoju ekoturystyki w regionie BTT oraz opracowanie strategicznych ścieżek jej zrównoważonego wzrostu. Praca opiera się na solidnych podstawach metodologicznych, łączących podejścia ilościowe i jakościowe. W celu zapewnienia wiarygodności i dogłębności wyników zastosowano metodę triangulacji. Dane pierwotne zebrano za pomocą badań terenowych, wywiadów i analiz statystycznych, natomiast dane wtórne obejmują dokumenty polityczne, statystyki turystyczne i literaturę naukową. W badaniu wykorzystano różnorodne narzędzia badawcze, takie jak ankiety, kwestionariusze wywiadów oraz oprogramowanie statystyczne, co zapewniło kompleksową i obiektywną ocenę rozwoju ekoturystyki w regionie BTT.

W pracy omówiono ewolucję pojęcia ekoturystyki oraz jego praktyczne zastosowania, podkreślając rolę zrównoważonej turystyki w ramach rozwoju regionalnego. Przedstawiono również podstawowe informacje na temt turystyki w Wietnamie, ze szczególnym uwzględnieniem czynników wewnętrznych i zewnętrznych wpływających na rozwój ekoturystyki w regionie BTT, takich jak infrastruktura, zarządzanie i dynamika społeczno-gospodarcza. Dodatkowo badania terenowe dostarczyły informacji na temat zachowań turystów, poziomu ich zadowolenia oraz zaangażowania lokalnych społeczności w ekoturystykę. W praca zidentyfikowano również kluczowe czynniki wpływające na rozwój ekoturystyki, takie jak świadomość ekologiczna, wdrażanie polityk oraz opłacalność ekonomiczna. Na zakończenie, w oparciu o analizę SWOT/TOWS, przedstawiono strategiczne rozwiązania na rzecz zrównoważonego rozwoju ekoturystyki w regionie BTT.

Niniejsza praca wnosi wkład zarówno do dyskusji akademickich, jak i praktycznych zastosowań dotyczących rozwoju ekoturystyki. Poprzez szczegółową analizę regionu BTT dostarcza cennych wskazówek dla decydentów, interesariuszy branży turystycznej oraz badaczy. Praca, skupiając się na wynikach badań na temat warunków rozwoju ekoturystyki, uwzględnia również ograniczenia i sugeruje kierunki dalszych badań.

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List of Abbreviations

ASEAN	Association of Southeast Asian Nations
BTT	Binh-Tri-Thien
BMMB	Bach Ma Management Board
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GIS	Geographic Information System
IERSD	Institute for Environmental Research and Sustainable Development
IUCN	International Union for Conservation of Nature
LOT	Law on Tourism
MARD	Vietnam Ministry of Agriculture and Rural Development
MOCST	Vietnam Ministry of Culture, Sports, and Tourism
MPI	Vietnam Ministry of Planning and Investment
MONRE	Vietnam Ministry of Natural Resources and Environment
NPMB	National Park Management Boards
PMVN	Prime Minister of Vietnam
PNKBMB	Phong Nha-Ke Bang Management Board
PLS-SEM	Partial Least Squares Structural Equation Modeling
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USD	United States dolar
TIES	The International Ecotourism Society
VNFT	Vietnam Administration of Forestry
VNAT	Vietnam National Administration of Tourism
VND	Vietnamdongs
WB	World Bank
WEF	World Economic Forum
WCED	World Commission on Environment and Development
WTO	World Trade Organization
WTTC	World Travel and Tourism Council

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Introduction

Tourism has long been recognized as one of the most dynamic economic sectors in the world (Dowling, 2000; Telfer and Sharpley, 2015; Butowski, 2023a). According to the UN Tourism[1], the number of international tourist arrivals has increased exponentially over the past decades. In 1950, international arrivals were approximately 25 million, whereas by 2023, this figure had surged to around 1.3 billion, with international tourism revenue reaching approximately USD 1.4 trillion. Total export earnings from tourism, including passenger transport, were estimated at USD 1.6 trillion in 2019 (UN Tourism, 2024). In addition, according to the World Travel and Tourism Council (WTTC), the tourism sector contributed 9.1% to global Gross Domestic Product (GDP) and generated 330 million jobs, accounting for 10% of total global employment in 2023 (WTTC, 2024). It also accounts for 6.8% of total export revenue, 28.3% of international service exports, and 4.3% of total foreign direct investment (UN Tourism, 2024). Tourism brings significant economic benefits to host countries by increasing domestic demand for production factors and reducing unemployment (Guerard et al., 2024). It stimulates aggregate demand, economic activity, exports, and GDP growth. Tourism further boosts various sectors of the economy by increasing demand for different goods and services, making a positive contribution to overall economic growth (Gavioli et al., 2025). As a driving force in many countries, tourism plays a crucial role in development, enhancing key economic indicators such as unemployment, inflation, interest rates, and GDP (Scheyvens and Biddulph, 2018). Additionally, it can lead to increased income, employment, tourism revenue, government revenue, and business opportunities through the growth of the tourism (Ioannides and Zampoukos, 2018). For developing countries, including Vietnam, tourism not only provides substantial income but also serves as a driver for sustainable development in underprivileged areas.

However, behind this impressive growth lies serious challenges, where the rapid expansion of mass tourism has led to numerous negative consequences (Bramwell, 2004; Egresi, 2016; Khater et al., 2024), including environmental degradation, pressure on local communities, and a decline in the quantity and quality of tourism resources (Fennell, 2008; Kangai et al., 2024). Overcrowding at popular destinations has resulted in habitat destruction, pollution, and excessive resource consumption, while the socio-cultural fabric of host communities has been strained by commercialization and shifts in traditional livelihoods (Milano et al., 2021). Moreover, Gössling et al. (2021) stated that the overreliance on mass tourism has made many regions vulnerable to economic fluctuations and external shocks, such

[1] Since 2024, the World Tourism Organization (UNWTO) has adopted a new name: UN Tourism

as global pandemics or financial crises. According to data from UN Tourism, the number of international tourist arrivals in 2020 declined by 72% compared to the record year of 2019, reaching 407 million, which represented the largest decrease in the history of recorded measurements (since 1950). Since 2021, a gradual increase in the number of international tourist arrivals has been observed. In 2021, the number rose to 456 million, and in 2022 it further increased to 963 million. A similar trend can be observed in international tourism revenues, which amounted to only USD 559 billion in 2020 but subsequently increased to USD 638 billion in 2021 and USD 1,031 billion in 2022 (UN Tourism, 2023). The pressing issues underscore the urgent need for sustainable tourism models that balance economic benefits with environmental and social responsibility (Hughes et al., 2015; Barbieri et al., 2020). Among the various approaches, ecotourism has emerged as a viable and prioritized solution. By promoting responsible travel to natural areas, minimizing ecological footprints, and fostering local engagement, ecotourism presents a pathway toward a more resilient and inclusive tourism (Weaver, 2001a; Fennell, 2019).

Shifting towards ecotourism and other sustainable tourism models is not just an option but a necessity for ensuring the long-term viability of the tourism sector. The term ‘ecotourism’ was probably first introduced by Ceballos-Lascurain to describe tourism activities in natural areas with the objectives of education and recreation (Ceballos-Lascurain, 1987). By 2013, The International Ecotourism Society (TIES) expanded this definition, emphasizing that ecotourism must uphold environmental responsibility, benefit local communities, and involve education and interpretation of nature (TIES, 2013). The definition of ecotourism continues to evolve and is actively debated in social and ecological literature concerning tourism issues (Fennell, 2001b; Honey, 2008; Studies et al., 2023). From the initial definition in 1987 to the present, the concept of ecotourism has progressed, shifting from a focus on minimizing the impact of tourism on the natural environment to a more responsible form of tourism that supports conservation, education, and improving the lives of local communities (Le and Nguyen, 2023). Accordingly, ecotourism not only plays a significant role in sustainable tourism development strategies but also helps raise environmental awareness among tourists and local communities (Weaver, 2001; Fennell, 2009; Singh et al., 2021).

Vietnam, ranked 16th globally in biodiversity, boasts a rich ecosystem that includes 110 significant biodiversity areas and numerous rare flora and fauna species (Do et al., 2022). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) recognizes Vietnam as one of the most ecologically significant countries in the world (Bui and Le, 2018),

with ecosystems ranging from mangrove forests and tropical rainforests to marine ecosystems. This natural beauty, coupled with the country's cultural wonders, is a key factor attracting ecotourists. There is substantial potential to expand ecotourism to meet this growing demand. The concept of ecotourism in Vietnam began to be studied only in the 1990s (Huong and Long, 2020). By the end of the decade, ecotourism garnered national attention, with the involvement of the Vietnam National Administration of Tourism and numerous international organizations in the country (Luong, 2015). Since then, the Vietnamese government has identified it as a significant tourism product to generate income for local communities and promote environmental conservation education, especially in economically disadvantaged regions (Lipscombe and Thwaites, 2003a; Huong and Long, 2020).

The Binh-Tri-Thien (BTT) region, located in Central Vietnam, is considered a promising ecotourism destination due to its abundant natural resources, biodiversity, and rich cultural heritage (Nguyen et al., 2022). Covering a total area of 17,524 km² and with a population of over 2.6 million (2020), this region features diverse ecosystems ranging from the Truong Son mountain range to the central coastal areas, tightly intertwined with the history and unique culture of local communities. However, despite these favorable conditions, ecotourism in the BTT region remains underdeveloped (Ly and Xiao, 2016; Ton, 2015; An, Hung, and Dung, 2024), facing numerous challenges that require appropriate and effective development solutions. While some studies have explored ecotourism development in national parks and nature reserves in various parts of Vietnam (An et al., 2019; Duong et al., 2024), in-depth academic and practical research specific to the BTT region is still limited. Most existing studies provide general assessments of ecotourism potential at the national or provincial level; however, they lack detailed investigations into the unique environmental, socio-economic, and cultural characteristics that shape ecotourism in the BTT region (Lipscombe and Thwaites, 2003a). This research gap hinders the ability to formulate targeted development strategies that align with the region's specific conditions. Another limitation in current research is the insufficient analysis of the direct and indirect factors influencing ecotourism in the BTT region (Phan, 2019). Moreover, studies on the economic, social, and environmental impacts of ecotourism on local communities in the BTT region remain scarce. While ecotourism is often promoted as a means to enhance livelihoods and preserve cultural heritage, little empirical data is available on how it affects income, employment opportunities, and the cultural identity of local ethnic groups in the region (Fennell, 2002; Niñerola et al., 2019). Without this understanding, it is difficult to determine whether ecotourism truly

benefits local communities or inadvertently exacerbates negative issues associated with tourism activities.

The dissertation aims to address the research gap by providing a comprehensive assessment of the current state and potential of ecotourism in the BTT region and the possibility of its development. The primary goal is to identify priority issues that need resolution and propose sustainable development strategies. The novelty of this study lies in its holistic approach, combining quantitative and qualitative methods applied to diagnose the current situation of ecotourism; as well as its employment of tools such as SWOT/TOWS analyses to formulate strategies. The findings of the research not only contribute to the theoretical foundation of ecotourism studies but also offer practical implications, providing a basis for policymakers, organizations, and individuals to sustainably manage and develop ecotourism.

The urgency of the above-mentioned issues has shaped the structure of this dissertation. It begins by establishing the philosophical foundations of the research, ensuring a basic ontological, epistemological and methodological framework for subsequent discussions. Following this, a comprehensive literature review is conducted, identifying key theoretical perspectives and research gaps in ecotourism studies. The dissertation then shifts to an overview of tourism development in Vietnam, providing context before narrowing the concentration to the current state of tourism and ecotourism in the BTT region. The analysis sets the stage for the preparation and implementation of empirical research, which examines ecotourism potential, significant influencing factors, and development pathways. Finally, the dissertation concludes by synthesizing the main findings, discussing limitations, and suggesting directions for future research. This structure ensures a systematic and coherent progression from theoretical foundations to practical insights, aligning with the research objectives. Specifically, the dissertation is organized into nine chapters as follows:

Chapter 1. Philosophical Foundations and Methodological Approach of Research

The chapter establishes the foundation for the entire dissertation by presenting the philosophical framework underlying the applied ontology and epistemology of research. At the methodological level, a triangulation approach is employed, integrating both quantitative and qualitative methods to enhance the reliability and depth of the analysis. Based on this foundation, the research problem, main hypothesis, research questions, working hypotheses, and objectives are presented. The chapter also outlines the spatial scope of the study and the limitations encountered during the research process. In particular, it presents the applied

methodological model and specifies aspects, such as data collection methods and technics (primary and secondary data), research tools including surveys, interviews questionaires, and statistical tools (softwares), as well as the steps undertaken to ensure the reliability, accuracy and objectivity of the research findings. The chapter lays the groundwork for subsequent parts of the dissertation, ensuring the research is built upon robust methodological frameworks.

Chapter 2. Theoretical Foundations of Ecotourism Research

This chapter discusses the evolution of ecotourism concepts and their practical applications, analyzed from both historical and contemporary perspectives, within the broader context of sustainable tourism and sustainable development. The content is based on extensive literature reviews, including quantitative bibliometric analysis as well as qualitative review. Through a combination of qualitative and quantitative analyses, the chapter identifies existing research gaps, which, in turn, inform the formulation of the research problem, hypotheses, and research questions in the previous chapter. Although Chapter 2 provides the theoretical foundation for ecotourism research, it is presented after Chapter 1 to first establish the study's philosophical orientation and methodological structure. Logically, Chapters 1 and 2 were developed simultaneously to ensure that the identification of the research problem was grounded in a thorough understanding of the theoretical landscape and existing research gaps. This sequence enhances the coherence of the research design, ensuring that theoretical discussions are purposefully aligned with the study's broader research framework.

Chapter 3. Tourism in Vietnam

The chapter provides an overview of the current state of tourism development in Vietnam, serving as a foundation and a starting point for more detailed analyses of tourism and ecotourism in the BTT region in subsequent chapters. It includes an analysis of both internal and external factors that may influence the growth of the tourism in the country, thereby identifying the general context in which ecotourism will develop. In addition, this chapter presents significant statistical data on tourism in Vietnam, including tourist arrivals, revenue, infrastructure, and human resources within the sector. The approach is primarily based on secondary data. This comprehensive analysis helps position of Vietnamese tourism within a broader context, laying the groundwork for in-depth research on tourism and ecotourism in the BTT region.

Chapter 4. Tourism in the Binh-Tri-Thien Region

The chapter focuses on analyzing the current state of tourism in the BTT region, providing a foundation for deeper evaluations of the potential and development of ecotourism in the area. The content of the chapter includes an overview of the factors influencing tourism, such as natural, social, economic, and political conditions, along with other elements that impact tourism development in the region. In addition, the chapter presents specific statistical data on tourist arrivals, revenue, infrastructure, and human resources, offering an accurate reflection of the tourism's current state in the BTT region. The analyses and synthesis of these factors not only help identify the advantages and disadvantages for tourism development in general, but also serve as a basis for evaluating potential and proposing strategies for ecotourism development in the area, presented in the following chapters.

Chapter 5. Ecotourism in the Binh-Tri-Thien Region: Organizational and Statistical Overlook

The chapter focuses on the legal framework, organizational structure, and ecotourism activities in the BTT region, based on secondary data. It includes an analysis of the legal regulations governing ecotourism, management models, and the types of ecotourism activities currently being implemented. The chapter also provides specific statistical data on tourist arrivals, revenue, infrastructure, and other related factors, helping to clarify the current state and level of development of ecotourism sites in the region. Through the analyses and synthesis of these factors, Chapter 5 not only identifies the necessary conditions for the development of ecotourism but also lays the foundation for the preparation of field research presented in the following chapter.

Chapter 6. Mapping Ecotourism Potential, Case Study Selection, and Field Research Methodology

The chapter provides a comprehensive account of the design and implementation of field research, structured into three main components: the spatial assessment of ecotourism potential, the selection of representative case study areas, and the methodology for collecting and analyzing primary data. It begins with a systematic mapping of ecotourism potential across the BTT region using a GIS-based multi-criteria evaluation approach. Based on the outcomes of this spatial analysis, four representative case study areas were selected. The chapter then presents the step-by-step process of field research conducted in three main stages: a pilot survey in 2022, the primary fieldwork in 2023, and an additional follow-up phase in 2024. Moreover, the chapter describes the methods for collecting, storing, analyzing, and processing primary data.

Chapter 7. Field Study Results and Their Discussion

The chapter presents the results of the empirical research, primarily based on data collected during the field surveys and interviews. The content of the chapter includes both quantitative and qualitative findings. The quantitative results mainly address such elements, such as trip characteristics, tourist satisfaction analysis (using the Partial Least Squares Structural Equation Modeling), and local community participation in ecotourism activities, all of which were analyzed in relation to the demographic profile of the survey participants. The qualitative results provide insights into the demographic context of the subjects through interviews with the manager/managers and discussions with local communities. The presentation of both quantitative and qualitative results in this chapter offers a comprehensive view, not only of tourist attitudes and behaviors, but also of the impacts and effects of ecotourism on the local community and tourism stakeholders.

Chapter 8. Strategies for Ecotourism Development in the Binh-Tri-Thien Region

This chapter begins by assessing the potential for ecotourism development in the BTT region, based on the results from previously presented analyses, including both primary and secondary data. Using the findings from the analysis of strengths (S), weaknesses (W), opportunities (O), and threats (T), the combined SWOT/TOWS method is applied to develop specific strategies and solutions aimed at promoting ecotourism development in the region. The chapter not only presents general strategies but also clarifies how to implement them, thereby guiding stakeholders on appropriate measures to develop ecotourism sustainably while addressing challenges and leveraging opportunities in the region. The proposed strategies in this chapter will be helpful in creating effective ecotourism development pathways that align with the unique characteristics and practical conditions of the BTT region.

Chapter 9. Final Conclusions, Limitations and Directions for Future Research

The final chapter of the thesis summarizes the significant research findings and important conclusions drawn from the study on ecotourism development in the BTT region. This chapter not only synthesizes the influencing factors and development strategies but also highlights the gaps and limitations in the research process while suggesting directions for future research to further refine the strategies and models for ecotourism development in the region. Furthermore, this chapter revisits all the assumptions established at the beginning of the study, as presented in Chapter 1. Based on the comprehensive analysis and findings, it evaluates whether the research problem has been effectively addressed, determines whether the hypotheses have been confirmed or rejected, and assesses the extent to which the research

objectives have been achieved. By doing so, the chapter provides a critical reflection on the research process and its outcomes, ensuring that the conclusions are well-founded and aligned with the overall research framework.

The logical structure of the thesis is summarized in Figure 1.1.

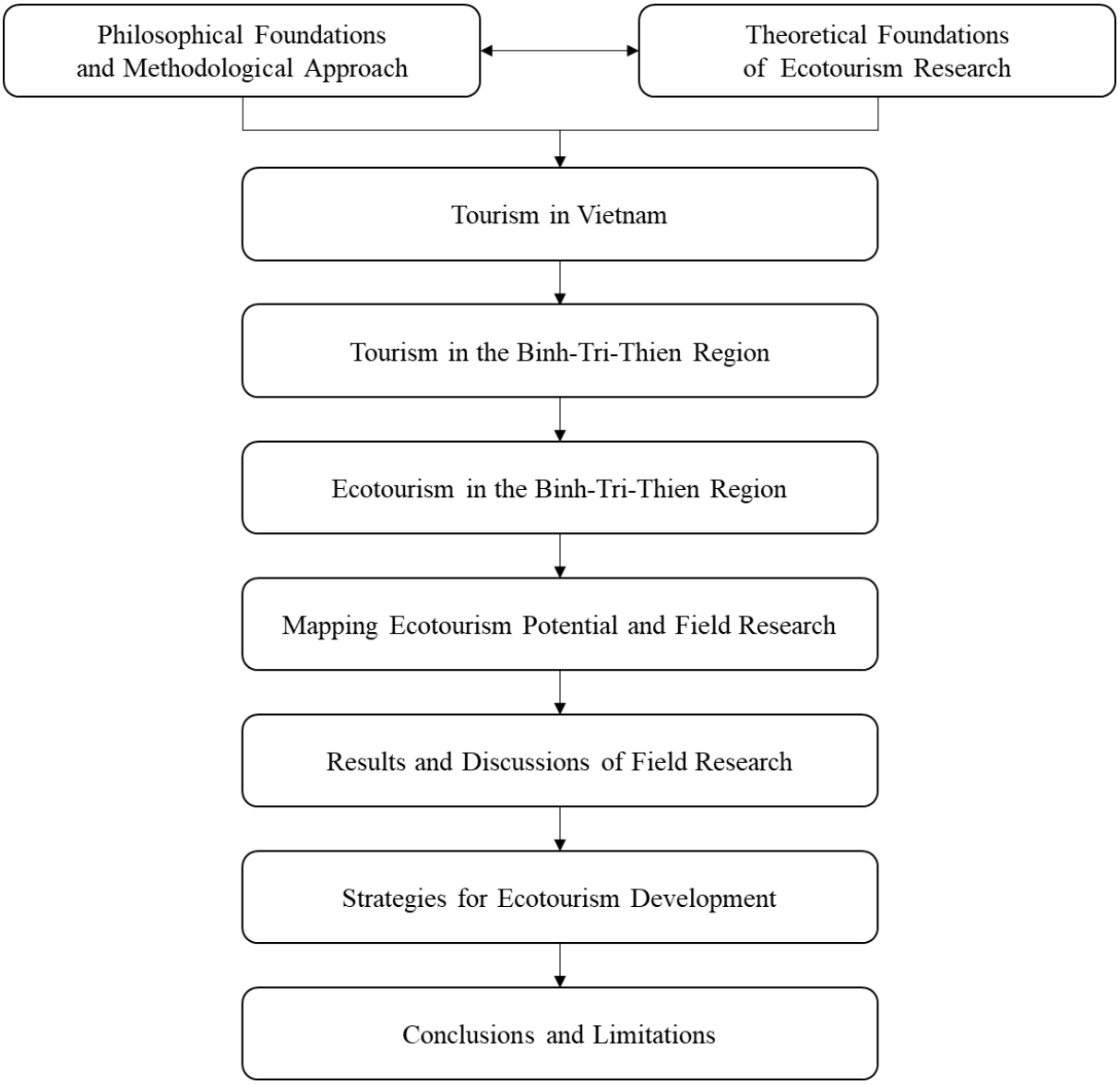

Figure 1.1. The Logic Structure of the Research[2]

Throughout the development of this dissertation, the author has made a conscious effort to maintain a balanced structure across chapters. However, due to the varying significance and analytical depth of each chapter, the number of headings and subheadings is not evenly distributed. This variation reflects the distinct roles and functions that individual chapters play within the overall framework of the research. In structuring the content, the author prioritized

[2] Unless otherwise stated, the sources of tables and figures are the author

clarity, coherence, and logical flow to enhance readability and facilitate understanding. As a result, certain chapters – particularly those involving in-depth analysis or methodological discussion – are presented with more detailed subdivisions, while others that serve a more introductory or transitional purpose are organized more concisely. This approach was adopted to ensure that the dissertation remains focused, well-structured, and aligned with its research objectives.

Apendices

In addition to the main chapters, the dissertation inludes appendices. They contain survey questionnaires, photographs taken during the research process, and permission forms for conducting the study at various tourist sites. These appendices not only demonstrate the technical aspects of the research but also provide supplementary information that helps to better understand the methods and procedures employed throughout the study.

Considering the overall structure and content of the dissertation, it is believed to make a meaningful contribution to both academic discourse and practical applications by bridging theoretical research with real-world contexts. The thesis not only advances scholarly understanding of sustainable ecotourism development but also responds directly to the contextual needs of the BTT region. Through a critical examination of theoretical frameworks and empirical data, the study offers evidence-based recommendations tailored to the specific socio-economic and environmental characteristics of the region. As such, it provides valuable insights for policymakers, tourism managers, and local communities in designing strategies that promote ecotourism as a driver of sustainable development, cultural preservation, and community empowerment.

Chapter 1. Philosophical Foundation and Methodological Approach

In order to establish a robust, transparent, and ethical foundation for this research, a well-defined philosophical and methodological approach is essential. The chapter systematically outlines the significant components that shape the research framework, ensuring coherence between the philosophical stance, research design, and data collection strategies. First, the chapter introduces the philosophical foundation of the study, defining the ontological and epistemological assumptions that guide the research process. These assumptions influence the methodology of research procedure, including the selection of research methods and the interpretation of findings. Following this, the research problem and the main hypothesis are presented, along with the research questions and their corresponding working hypotheses. The research objectives are also defined and serve as the guiding pillars for the investigation. These elements are determined from the literature review presented in Chapter 2. Notably, the research gap highlights the limitations, unresolved issues, or underexplored areas within the existing body of knowledge in tourism and ecotourism, forming the foundation upon which the study is built. As a result, the development of Chapter 1 and Chapter 2 occurs in parallel, ensuring a coherent and well-grounded research framework.

To ensure a comprehensive and multidimensional understanding of the research problem, the chapter then discusses the implementation of triangulation approach, emphasizing the integration of multiple methods and techniques. This is complemented by the case study method, which provides a contextualized analysis of ecotourism development in the four chosen areas of the Binh-Tri-Thien region. The chapter also delineates the data collection strategy, distinguishing between primary and secondary data sources, and explaining the rationale behind their selection. Finally, Chapter 1 highlights the ethical considerations and necessary permissions involved in conducting the research. Adherence to ethical guidelines ensures the integrity, validity, and reliability of the study while safeguarding the rights and interests of all participants. By addressing these methodological aspects, this chapter serves as a structured roadmap for the research, ensuring alignment with its objectives and maintaining academic rigor.

1.1. Philosophical Foundation of the Research

In the context of research, philosophy plays a crucial role in shaping the approach and determining the methodology for data collection and analysis (Paudel, 2024). Research philosophy is a set of perspectives, values, and methods that researchers use to define and guide their research process (Howell, 2012). It establishes how researchers perceive the world

and interact with various aspects of their study, from selecting the research problem and data collection methods to analyzing, interpreting and presenting findings. As Hedlund-de Witt (2012) argues, different worldviews lead to different research approaches. Therefore, to ensure logical coherence and contextual relevance, the choice of philosophical background must reflect the researcher's theoretical perspective and be carefully considered based on fundamental assumptions such as ontology and epistemology.

Ontology: Realist Foundation of Naturally of Socially Constructed Entities

Ontology concerns the nature of reality and the question of how reality exists (Guba, Egon G., 1994; Franklin, 2004; Smith, 2012). Searle (1995, 2011) differentiates between two modes of existence for entities in the world: 1) ontologically subjective and 2) ontologically objective. In the first case, entities are processed through human emotions, experiences, and perceptions, making them inherently subjective. However, other objects or phenomena, due to their intrinsic characteristics or functions, exist independently of human emotions, desires, or experiences, meaning they are ontologically objective. Butowski (2023) further emphasizes that ontologically subjective entities, as well as all their observable manifestations, may acquire characteristics of ontologically objective entities from the perspective of an external observer. This dual nature is particularly relevant in social sciences, where reality is shaped both by objective structures and subjective human interpretations.

In this study, the ontology is grounded in the (new) realist paradigm (Searle, 2006, 2011; Butowski, 2023; Butowski and Butowski, 2023), which is applied to perceive the ecotourism domain. Its reality encompasses both tangible, physical entities – such as natural and cultural resources, ecosystems, infrastructure, and other objects and structures. They serve as a base for psychologically and socially constructed reality that includes (often intangible) human attitudes, meanings, behaviors, perceptions, experiences, relationships as well as social structures and institutions. A comprehensive and holistic representation of ecotourism can only be achieved by considering these two dimensions in tandem. This approach allows researchers to adopt an external and, therefore, (as much as possible) objective perspective on ecotourism reality. The new realist perspective aligns, at least in part, with contemporary tourism studies, which acknowledge the dynamic interplay between objective structures and subjective experiences in shaping tourism phenomena (Korsgaard, 2003; Cohen and Cohen, 2012; Botterill, 2014; Butowski, 2023b). Within this framework, tourism-related phenomena can be subjected to objective investigation, reinforcing the epistemological validity of this approach.

Epistemology: A New Realist Approach as a Base for Epistemic Objectivity

Epistemology is a fundamental philosophical perspective that examines the nature, origins, and limits of knowledge (Crotty, 1998). It addresses fundamental questions such as What can we know? What constitutes valid and reliable knowledge? When can we assert that something is truly knowledge? Which sources of knowledge can be trusted? Epistemology provides the philosophical foundation for determining the types of knowledge that can be acquired and the methods for ensuring their validity (Fuller, 2002; Rescher, 2012). Butowski (2023b) also emphasizes that epistemology is a branch of philosophy that explores human cognition and the ability to perceive the world. It encompasses several key aspects, including: 1) the origins and limitations of human knowledge; 2) the status of acquired knowledge; 3) attitudes toward different sources of knowledge; 4) the relationship between the knowing subject and the object of knowledge; 5) the role of the researcher in the knowledge acquisition process; and 6) the criteria of truth in evaluating research outcomes.

Since the ontology of this study is grounded in the principles of new realism, its epistemological framework is likewise established on this foundation. It adheres to the fundamental assumption that scientific knowledge should be epistemologically objective, or at the least intersubjective. This implies that such knowledge must be subject to empirical or logical verification i.e. confirmation or falsification (Popper, 1979; Neuman, 2014; Prayag, 2018) and should remain resistant to the influence of the researcher's subjective biases (Searle, 1995, 2011). At the same time, it is important to emphasize that epistemologically objective knowledge can pertain to both ontologically objective and subjective entities. While these criteria apply to scientific knowledge, they do not encompass the entirety of human knowledge. Other forms of knowledge, such as those related to the arts, spirituality, or religion, do not necessarily require empirical justification or epistemic objectivity, understood as explained above (Butowski, 2023).

Ecotourism as an Ontologically Objective and Subjective Realm Explored from an Epistemologically Objective Perspective

Building on the aforementioned assumptions, this study adopts a new realist foundation, recognizing both the ontologically objective and subjective dimensions of ecotourism, which can be examined through an epistemologically objective lens.

In this context, the study systematically collects measurable data, including the number of tourists, revenue generated from ecotourism activities, quantitatively expressed tourist satisfaction levels, and the degree of local community participation in tourism initiatives.

These data have been gathered through survey questionnaires, processed using statistical techniques, and analyzed to ensure reliability, replicability, internal and external validity (Alan, 2012), and generalizability (Baggio, Rodolfo, 2017).

Conversely, human experiences, perspectives, and interpretations regarding various aspects of ecotourism necessitate the application of qualitative methods such as in-depth interviews, direct observations, and content analysis of literature (Denzin and Lincoln, 2011; Dwyer et al., 2012). These methods facilitate a deeper understanding of local communities' perceptions of ecotourism's potential, their involvement in ecotourism activities, and its role in poverty alleviation, livelihood improvement, and sustainable environmental conservation (Wearing et al., 2002; Cini and Passafaro, 2019). The qualitative methods employed in this study adhere, as far as possible, to basic criteria such as trustworthiness, credibility, transferability, dependability, and confirmability of qualitative (Alan, 2012).

This multi-dimensional approach enhances research accuracy by integrating diverse data sources and perspectives (Prayag, 2023), providing a more holistic understanding of ecotourism realm in the BTT region while maintaining epistemic objectivity (understood as explained above) related to both quantitative and qualiatative approaches.

1.2. Research Problem, Questions, Hypotheses, Goal and Objectives

Building upon the previously established philosophical foundation of the study, this subchapter outlines the research problem, formulates the corresponding main hypothesis, defines the research questions, with adequate working hypotheses, and addresses the research's direct and indirect objectives that will guide the investigation.

Research Problem

Building on the established ontological and epistemological foundations of this study, the research problem is formulated, which refers to the comprehensive understanding of ecotourism development in the Binh-Tri-Thien (BTT) region. In this context, 'comprehensive understanding' refers not only to assessing the ecological, socio-cultural, and economic potential of the region for ecotourism but also to exploring the interplay between local environmental assets and community participation. It involves identifying enabling conditions and constraints that influence the viability and sustainability of ecotourism initiatives within the region.

The research problem emerges from critical gaps identified through an extensive review of existing literature. While numerous studies have addressed ecotourism in general terms or

within protected areas, few have examined how integrated approaches – combining spatial analysis, community-based strategies, and sustainability-oriented planning – can be effectively applied at a regional scale such as the BTT region. Moreover, there is a lack of empirical studies that evaluate ecotourism suitability and that align local development needs with conservation goals. Consequently, the research problem can be succinctly formulated as follows: What is the potential for ecotourism development in the BTT region, and which strategies are most effective for its successful implementation?

The justification for this research problem is based on the need to assess the BTT region's diverse natural and cultural resources and their utilization in sustainable tourism development. A systematic evaluation is crucial to identify opportunities and challenges in ecotourism planning while ensuring a balance between economic, social, and environmental sustainability. The study also contributes to the broader academic discourse by offering insights applicable to similar regions. Furthermore, it aims to provide practical recommendations for policymakers and tourism stakeholders, optimizing resource use, enhancing community involvement, and promoting sustainable tourism strategies tailored to the region's conditions.

Main Hypothesis

Taking into account the aforementioned general research problem the corresponding main hypothesis has been adopted. It assumes that the Binh-Tri-Thien region has significant potential for the development of ecotourism. However, this potential is, for various reasons, not sufficiently utilized for this purpose. The justification for this hypothesis is grounded in both earlier research findings (An et al., 2019; Hong and Saizen, 2019; Phan, 2019) and theoretical considerations regarding general rules and conditions of ecotourism development.

Firstly, the BTT region possesses rich natural resources, including national parks, waterfalls, and biodiversity reserves, which are fundamental assets for ecotourism (An, Hung, Dung, et al., 2024; Limbert et al., 2020). Locations (chosen for the research as case studies) such as Phong Nha-Ke Bang National Park, Bach Ma National Park, and A Nor Waterfall exhibit high ecological value, scenic beauty, and cultural significance. These features align with the core criteria for ecotourism destinations. Secondly, the region benefits from a strong cultural heritage, with indigenous communities playing a crucial role in preserving traditional knowledge and practices (Linh and Walter, 2014; Choi, 2016). The presence of ethnic minority groups contributes to the diversity of cultural experiences offered to tourists, which

can serve as a key attraction for responsible travelers seeking authentic and sustainable tourism experiences.

Despite these advantages, the aforementioned preliminary research highlights several barriers preventing the full realization of the region's ecotourism potential. These include: 1) limited infrastructure and accessibility, especially poor road conditions, lack of sustainable transportation options, and inadequate visitor facilities hinders tourist access to ecotourism sites (Ly and Xiao, 2016; Le et al., 2022); 2) weak promotion and marketing strategies including the absence of effective promotional campaigns targeting international and domestic tourists result in low awareness of the region's ecotourism attractions (Le, 2020; Bui et al., 2024); 3) challenges in community involvement: while community-based tourism is a crucial component of ecotourism, there is insufficient participation from local communities due to a lack of training, financial incentives, and policy support (Cuong et al., 2024); and 4) environmental and socioeconomic pressures exposing by the expansion of mass tourism, illegal logging, and resource exploitation pose threats to the sustainability of ecotourism initiatives (Bui and Pal, 2022; Fan et al., 2022; Le et al., 2023). In addition, economic dependencies on conventional tourism and agriculture may limit stakeholders' interest in developing ecotourism.

These earlier findings indicate that, while the BTT region has substantial ecotourism potential, the current utilization of this potential remains inadequate due to infrastructural, promotional, and socio-environmental constraints. The main hypothesis is therefore well-founded and ready for empirical testing through more detailed research questions and working hypotheses.

Research Questions and Working Hypotheses

To further refine the research problem, the study seeks to address three specific research questions (RQs) and corresponding with them working hypotheses (WHs). They are designed to systematically test the main hypothesis, allowing for its confirmation or falsification and ultimately contributing to the resolution of the research problem (Figure 1.2).

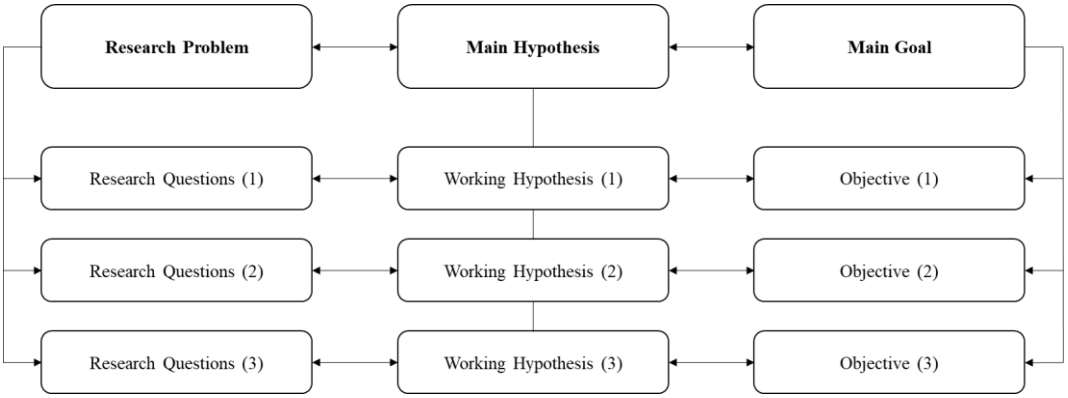

Figure 1.2. Logical Relationships Among the Research Problem, Questions, Hypotheses, Goal, and Objectives

RQ1. What are the factors influencing the potential for ecotourism development in the Binh-Tri-Thien region?

This question aims to diagnose the current state of the BTT region as it relates to ecotourism. It emphasizes the importance of understanding the baseline conditions, including the identification and significance of different direct and indirect factors.

In relation to RQ1, the corresponding working hypothesis (WH1) posits that ecotourism development in the BTT region is shaped by a combination of internal and external factors. Internal factors include natural and cultural resources, tourism infrastructure, and local community engagement, while external factors encompass government policies, competition from other ecotourism destinations, and broader socio-economic conditions. Although the region possesses substantial ecotourism potential, challenges such as inadequate infrastructure, limited marketing and promotional capacity, and deficiencies in workforce quality hinder its sustainable development.

To test WH1 and address RQ1, the analysis will be structured as a diagnostic assessment, offering an accurate and objective depiction of the region's current status in the context of ecotourism. This assessment will adopt both internal and external perspectives to provide a comprehensive evaluation of the factors influencing ecotourism development in the BTT region.

RQ2. What are the strengths and weaknesses (internal) as well as opportunities and threats (external) for the development of ecotourism in the Binh-Tri-Thien region?

This question builds on the situational diagnosis by focusing on the evaluation of influencing factors. Internal factors pertain directly to tourism assets, including natural conditions, culture, environmental management policies, political stability, and social safety. External factors, on the other hand, such as political dynamics in the region, tourism competition, the impact of climate change, and the COVID-19 pandemic, shape the viability of ecotourism. This dual

analysis should provide a full understanding of the region's strengths and challenges, forming the basis for subsequent evaluation.

In relation to RQ2, the corresponding working hypothesis (WH2) posits that the strengths of ecotourism in the BTT region lie in its rich biodiversity, cultural heritage, and unique natural landscapes, while weaknesses include limited infrastructure, insufficient investment, and a lack of skilled workforce. Externally, opportunities arise from increasing demand for sustainable tourism and supportive policies, whereas threats stem from environmental degradation, competition with other destinations, and climate change.

To test WH2 and address RQ2, the analysis will be conducted as an evaluative study, systematically assessing the significance of all identified internal and external factors that influence ecotourism development in the BTT region. A qualitative approach, specifically the SWOT/TOWS analysis, will be applied to classify and interpret these factors.

RQ3. What are the most viable strategies and pathways for promoting sustainable ecotourism development in the Binh-Tri-Thien region?

This question directs the research towards actionable outcomes, focusing on identifying development strategies that align with sustainability principles. These strategies must integrate economic feasibility, social equity, and environmental conservation. By outlining both short-term and long-term objectives, they should provide a clear direction for fostering sustainable ecotourism development in the BTT region.

In relation to RQ3, the corresponding working hypothesis (WH3) posits that the most viable strategies and pathways for sustainable ecotourism development in the BTT region must be based on a balance between economic feasibility, social inclusiveness, and environmental conservation. Strategies should integrate community-based tourism models, eco-friendly infrastructure development, policy improvements, and capacity-building initiatives to ensure long-term sustainability.

To address RQ3 (and test WH3), the research will develop specific proposals for ecotourism development in the BTT region, focusing on all three sustainability aspects: economic, social, and environmental. These proposals will be formulated based on findings from previous analyses and evaluations, ensuring that recommendations are realistic, strategic, and aligned with both local conditions and broader sustainable tourism trends.

Research Goal and Objectives

The main immediate goal of this study is to solve the research problem by testing the adopted hypotheses and finding answers to detailed research questions. This should be possible through the evaluation of the potential for ecotourism development in the Binh-Tri-Thien (BTT) region by assessing its current status, identifying significant influencing factors, and proposing sustainable development strategies. To achieve this goal, the study sets out the following specific objectives, including:

1) To diagnose and assess the current state of ecotourism development in the BTT region by analyzing both direct and indirect factors influencing its potential. These factors include natural resources, cultural heritage, tourism infrastructure, management policies, and socio-economic conditions. In addition, the study focuses on identifying the barriers and limitations that hinder the sustainable development of ecotourism in this region.

2) To identify and evaluate the strengths, weaknesses, opportunities, and threats analysis of the region's ecotourism development. The assessment of internal factors concentrates on aspects such as biodiversity, cultural heritage, environmental management capacity, and the level of community participation. Meanwhile, external factors will be examined, including policy support, the impacts of climate change, competition with other destinations, and global influences such as the COVID-19 pandemic.

3) To propose strategies and solutions for the sustainable development of ecotourism in the BTT region based on the principles of balancing economic benefits, conserving natural resources, and ensuring community involvement. Furthermore, both short-term and long-term solutions are identified to enhance the effectiveness of ecotourism management and development in a sustainable manner.

By achieving these objectives, this study not only contributes to the advancement of ecotourism in the BTT region but also enhances the theoretical foundation of ecotourism development within Vietnam.

Applying another more general perspective the objectives of the study may be classified as cognitive, methodical, and practical. The first are concerned with the contribution to academic knowledge on ecoutoursim by testing and implementing certain concepts, pre-theories and theories, which were used as a conceptual ground for the research and the interpreatation of its outcomes. Methodological objectives are related to the implementation of triangulation strategy through application of chosen methods coming from different

sometimes opposite approaches. And the practical aspect of research relates to its significance for the possibility of real implementation proposed strategies and pathways, elaborated on the solid theoretical foundations.

1.3. Research Design

This subchapter outlines the research design, primarily introducing the triangulation strategy along with the specific methods and techniques employed to ensure a comprehensive and reliable analysis.

Triangulation Strategy

Building upon the ontology and epistemology established in Subchapter 1.1, a triangulation strategy is adopted to enhance the depth and reliability of findings. Triangulation is understood as the combination of multiple methods to study the same phenomenon (Decrop, 1999; Koc and Boz, 2014). According to Denzin (2012), triangulation involves employing multiple research methods to gain deeper insights into the issues under investigation. Since no single research method is inherently superior and each approach possesses its own strengths and limitations (Denzin, 2017), triangulation has become a widely accepted practice in social science research (Hussein, 2009). Triangulation is not merely a tool but also a critical strategy in evaluating and validating research findings. Its value lies in its ability to integrate diverse data sources, methodologies, and approaches, thereby minimizing bias and enhancing the accuracy of research conclusions. According to Singh et al. (2012), the application of triangulation offers several key benefits, including: 1) Enabling an exploratory inductive research process that begins with empirical evidence and progresses toward abstraction, theorization, and generalization (Denzin, 2017); 2) Facilitating the answering of exploratory questions while simultaneously verifying and advancing theoretical development in research (Kelle, 2022); and 3) Leveraging the advantages and addressing the limitations of individual methods, thereby allowing researchers to examine the research problem from multiple perspectives (Turner et al., 2017).

Given the complex and heterogeneous nature of diagnosing and assessing the current state of ecotourism in the Binh-Tri-Thien (BTT) region, as well as formulating strategies for its sustainable development, a single methodological approach would be insufficient to comprehensively capture the issue. Therefore, this study employs a triangulation approach by integrating multiple research methods to provide a multidimensional perspective and enhance the reliability of the findings. First, triangulation allows for the integration of both quantitative

and qualitative methods, shedding light on overall trends as well as subjective factors influencing ecotourism development (Koc and Boz, 2014; Turner et al., 2017). Previous studies have shown that quantitative and qualitative methods each offer unique advantages (Wenger, 1999; Jervis and Drake, 2014; Rahman, 2016). Quantitative methods are used to analyze relationships among measurable factors, with data collected through questionnaires and large-scale surveys (Stockemer, 2019). The primary objective of this approach is to provide descriptive statistics, identify trends, and test hypotheses based on data from representative samples (Hancock et al., 2010). Meanwhile, qualitative methods focus on in-depth analysis of attitudes, behaviors, and experiences of stakeholders, including local communities, tourists, and managers, through interviews, field observations, and field notes (Seaman, 2008; Gerring, 2017). To leverage the strengths of both approaches, this research employs a mixed-methods approach, ensuring that the strengths of one method compensate for the weaknesses of the other, thereby providing a more comprehensive understanding of the research problem (Mok and Clarke, 2015).

Methods and techniques of research

Taking into account the assumptions of triangulation strategy adopted for this research, the following specific methods and techniques were applied:

1) The theoretical foundation for ecotourism was established through content analysis and bibliometric analysis, ensuring a systematic and comprehensive approach to reviewing existing knowledge. This process involved synthesizing and evaluating reputable scientific literature from databases such as Web of Science, Scopus, and Google Scholar, which were recognized for their rigorous indexing standards. The selection criteria prioritized books, conference proceedings, and journal articles published between 2000 and 2022, ensuring the research remained both current and historically contextualized. To systematically organize and analyze the extensive body of literature on ecotourism, the Mendeley software was used for reference management, citation organization, and literature storage, ensuring that sources are efficiently categorized and accessible. In addition, the VOSviewer software was employed for bibliometric analysis. These tools facilitated the identification of prominent research themes, scientific linkages, and trends in ecotourism, providing a solid basis for subsequent analyses. More importantly, they enabled the identification of research gaps, ensuring that the study addressed unresolved issues and contributed meaningfully to the existing body of knowledge.

2) Secondary data were collected from various sources, including books and scientific monographs, journals, newspapers, websites, social media platforms, and official government records in Vietnam, particularly from the BTT region, and were stored using Excel software. Subsequently, the secondary data analysis was conducted using various methods and techniques such as descriptive analysis, content analysis, and comparative analysis, aiming to provide an overview of the tourism sector in Vietnam, tourism in the BTT region, related policies, as well as organizations managing and developing ecotourism activities in the region.
3) Primary data were collected through three field surveys involving tourists and the representatives of various groups of tourism stakeholders, conducted in the summers of 2022, 2023, and 2024. In addition to survey questionnaires designed to collect data on a large scale, the data were supplemented by qualitative methods such as direct observation and semi-structured interviews with the local community. The collected data were digitized and analyzed using advanced quantitative software such as SPSS ((Statistical Package for Social Sciences) and SmartPLS. Specifically, the Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied to evaluate tourists' satisfaction with ecotourism services, providing deep insights into service quality. In addition, qualitative data from interviews and direct observations contributed to a richer understanding of local perspectives and the contextual factors influencing ecotourism development. These interviews were systematically recorded and stored using Excel, allowing for efficient data management and organization. The qualitative data were then analyzed through content analysis, with recurring themes and patterns identified to provide deeper insights into key issues.
4) The SWOT/TOWS analysis was utilized to comprehensively assess internal and external factors affecting ecotourism in the BTT region. Findings from prior qualitative and quantitative analyses were integrated into a SWOT matrix to identify strengths, weaknesses, opportunities, and threats. This analysis described the current state of ecotourism. Building on the SWOT results, the TOWS framework was employed to propose specific strategies to develop ecotourism in the BTT region. The TOWS enabled the transformation of the SWOT factors into optimal solutions, helping devise effective interventions to address practical challenges in sustainable ecotourism development.
5) In order to enhance the comprehensiveness and accuracy of the research, Geographic Information System (GIS) analysis was employed to support spatial analysis and

develop base maps for illustrating research findings. More importantly, GIS was applied to identify areas with potential for ecotourism development based on various geographical and environmental factors, including elevation, slope, distance to surface water, distance from roads, vegetation, distance from protected areas, temperature, rainfall, distance to historical and cultural sites, and population density.

These research methods and technics were elaborated upon in specific chapters and analyses throughout the dissertation.

1.4. Case Study Approach

While the previous subchapters provide the philosophy foundation and general methodology for the research, the case study approach serves as a crucial tool for investigating phenomena occurring in specific contexts that may not be easily generalized through other research methods. According to Yin (2009), the application of case study research depends on three key conditions: (1) the type of research questions, (2) the researcher's ability to control variables, and (3) the research context, including contemporary or historical factors. White and Cooper (2022) also pointed out that the method is particularly valuable for examining complex social phenomena that occur in diverse contexts. It enables researchers to analyze and retain significant variables related to real-life situations, such as individual life cycles, small group behaviors, social relationships, or the processes and performance of organizations (Heale and Twycross, 2018).

In this study, the analysis of ecotourism impacts at many destinations requires a comprehensive approach to collect and analyze data from diverse stakeholder groups. Furthermore, the case study method facilitates the seamless integration of qualitative and quantitative data. Quantitative data, such as surveys from households or tourists, provide specific numerical results and trends. Meanwhile, qualitative data, collected through in-depth interviews or field observations, offer deeper insights into the attitudes, emotions, and cultural contexts of stakeholders (Yin, 2009; Denzin, 2012). This combined approach provides a holistic understanding of the impacts of ecotourism at the studied locations.

Despite its advantages, the case study approach has limitations that require careful consideration. One major limitation is the generalizability of findings, as case studies often focus on specific instances (Feagin et al., 2016). To mitigate this limitation, the current study employs triangulation (as presented in previous subchapter) – integrating multiple data

sources, collection methods, and analytical tools – to enhance the reliability and validity of the findings (Yin, 2009).

Case Study Sites Chosen for the Research

The selection of case study sites was guided by the GIS-based suitability assessment, ensuring they were located in areas classified as 'highly suitable' or 'suitable' for ecotourism development (as presented in Subchapter 6.1). Beyond spatial suitability, the sites were chosen to reflect the ecological, socio-economic, and typological diversity of ecotourism in the BTT region. In particular, the research selects four specific sites (Figure 1.3), representing two primary ecotourism models: 1) national parks and 2) community-based ecotourism areas. By examining these distinct types of destinations, the study aims to offer valuable insights into ecotourism practices in the BTT region. The specific characteristics of these case destinations are detailed in Section 6.1.3.

1) Phong Nha-Ke Bang National Park: A UNESCO World Heritage Site with a unique ecosystem and a pivotal role in attracting international tourists (Ly and Xiao, 2016). This area is renowned for its extensive cave systems, pristine forests, and biodiversity, offering significant value for both tourism and conservation.
2) Bach Ma National Park: A tropical rainforest ecosystem suitable for developing ecotourism and environmental education activities (An, Hung, Dung, et al., 2024). Bach Ma is distinguished by its nature exploration routes, diverse flora and fauna, and historical significance in connecting cultural regions.
3) A Nor Waterfall: A site characterized by its ethnic minority communities and scenic natural landscapes, offering great potential for community-based ecotourism (Le, 2024). Cultural heritage, traditional crafts, and natural attractions make this area appealing, fostering local livelihoods through sustainable tourism models.
4) Ngu My Thanh Village: A fishing village located along the Tam Giang-Cau Hai Lagoon, where the cultural practices of lagoon communities blend harmoniously with unique natural landscapes (Phuong Vy et al., 2024). Ngu My Thanh holds great potential for developing comunity-based ecotourism through activities such as fishing experiences, lagoon ecosystem tours, and explorations of coastal village life. This village plays a critical role in showcasing the ecological and cultural values of Southeast Asia's largest lagoon system.

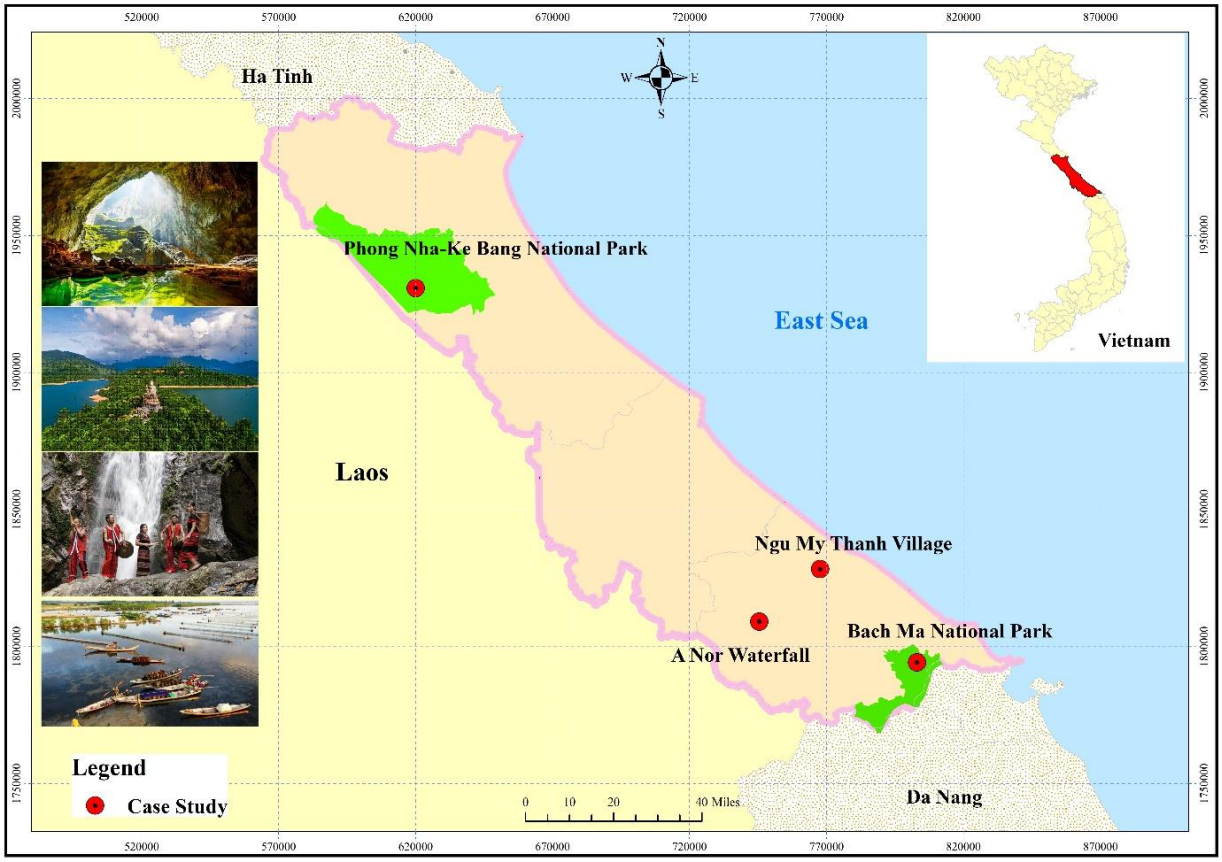

Figure 1.3. Case Study Sites Chosen for the Study

These four sites not only represent the diverse natural and cultural resources of the BTT region but also serve as exemplary cases for studying the impacts of ecotourism on local communities, encompassing economic, social, and environmental dimensions. Each destination is analyzed as a distinct case, while the findings are integrated to present a comprehensive picture of ecotourism in the BTT region. The approach enables a nuanced understanding of both site-specific dynamics and broader regional trends, ultimately contributing to more effective and contextually relevant ecotourism strategies.

1.5. Data Collection

Data are a central element in analyzing and testing research hypotheses, and presenting them separately helps clarify the specific processes involved while also emphasizing the critical role of each type of data in addressing the research objectives. The subchapter outlines the processes of gathering both secondary and primary data to address the research problem and achieve the objectives of the study. Secondary data are collected from diverse sources, while primary data are gathered through field surveys, interviews, and direct observations with relevant stakeholders and local communities.

Secondary Data Collection

Secondary data are utilized to extract existing information, aiming to address the research questions posed (Church, 2002). In other words, secondary data refers to information that has been collected and analyzed by other organizations or individuals, which is readily available for use and can be adapted to suit the research purpose (Tripathy, 2013). These data include materials such as scientific articles, monographs, statistical reports, and publications from governmental or non-governmental organizations (Hofferth, 2005). Accessing secondary data are often less complex than primary data collection; however, accessibility may still be limited by the publisher's consent (Andersen et al., 2011). This study collected secondary data from various reliable sources to establish the context and assess the current status of ecotourism in the Binh-Tri-Thien (BTT) region. Specifically, the documents utilized include:

1) Academic journal articles and monographs: These resources provide foundational knowledge and diverse research perspectives on sustainable development, ecotourism, and community-based management models. The literature is drawn from high-impact sources indexed in Web of Science (WOS), Scopus, and other reputable publishers such as Springer, Elsevier, Taylor and Francis, and Wiley. These scholarly works offer empirical evidence, theoretical frameworks, and methodological approaches that contribute to a comprehensive understanding of ecotourism development.
2) Official government publications: These include statistical reports, socio-economic development plans, and policies related to tourism and nature conservation. Notably, documents from the Vietnam Ministry of Culture, Sports, and Tourism, the Vietnam National Administration of Tourism, and provincial authorities in the BTT region were analyzed to gather data on tourist numbers, revenue, and ecotourism development initiatives.
3) Reports published by international organizations, such as the United Nations (especially UN Tourism), the World Bank, the World Trade Organization (WTO) and the World Travel and Tourism Council (WTTC), provide insights into sustainable tourism, international conventions, treaties, and global statistics. These documents contribute to building the theoretical framework and benchmarking local data against international practices.
4) Websites and digital resources: official websites of governmental and non-governmental organizations, as well as online databases, were utilized to update the latest information on ecotourism development trends and sustainable initiatives. In addition, this research

also examines official websites, online reports, and social media pages of main ecotourism sites in the BTT region, including: Phong Nha-Ke Bang National Park (https://phongnhakebang.vn/); and Bach Ma National Park (https://bachmapark.com.vn/).

However, several notable limitations are encountered during secondary data collection. First, there is a lack of specific and up-to-date data on ecotourism activities at the provincial level. Detailed statistics on tourist numbers, revenue, and the economic, social, and environmental impacts of ecotourism have not been thoroughly recorded at the provincial scale. Much of the information is either generalized or outdated, making in-depth analysis challenging. Second, there are inconsistencies among data sources. Some information from different sources lacks uniformity, necessitating comparison and cross-referencing to ensure accuracy and reliability.

Primary Data Collection

This study employs primary data collection methods to ensure the direct and comprehensive gathering of information on various aspects of ecotourism in the BTT region. Three main tools were used: quantitative surveys, in-depth interviews (semi-structured interviews), and field observations.

The quantitative data were collected through two field research trips conducted in the BTT region, including: 1) a pilot study carried out in the summer of 2022 and 2) a main field study in the summer of 2023. These two phases allowed for refining the research instruments and ensuring the reliability of the data collection process. During these field studies, a total of 550 completed questionnaires were gathered. The survey was designed for two distinct target groups: 1) tourists and 2) local communities (Appendix A). To accommodate the diverse backgrounds of respondents, the tourist survey was prepared in both English and Vietnamese versions. Once collected, the survey responses underwent an initial screening process to remove incomplete or inconsistent entries. The cleaned data were then digitized and systematically processed using the Excel software for data management, SPSS software for statistical analysis, and SmartPLS software for structural equation modeling.

Qualitative data were collected through two field research trips: 1) a pilot study in the summer of 2022 and 2) an additional field study in the summer of 2024. No qualitative data were gathered during the main field study in 2023, as this phase focused on large-scale quantitative surveys to establish a strong statistical foundation. Conducting both types of data collection simultaneously would have posed logistical challenges and affected data quality.

Semi-structured interviews were conducted with key stakeholders, including local government officials, national park managers, cooperative managers, tourism business owners, and local households (Appendix B). Instead of using predefined questions, the author developed a list of discussion topics, allowing for open-ended exploration of ecotourism-related issues. A total of 35 interviews were completed across the two field studies. The collected data were then recorded, systematically stored, and analyzed based on pre-identified themes to extract key insights on ecotourism development.

In addition to surveys and in-depth interviews, field observations were conducted at study sites, including the Phong Nha-Ke Bang National Park, Bach Ma National Park, A Nor Waterfall, and Ngu My Thanh Village. This method aimed to document cultural, environmental, and infrastructure characteristics at the local level, providing direct insights into the opportunities and challenges of ecotourism development in the BTT region. Observations focused on key aspects such as natural resource conditions, tourism facilities, visitor behaviors, and interactions between tourists and local communities. These on-site assessments allowed for the identification of strengths, such as well-preserved landscapes and unique cultural practices, as well as weaknesses, including inadequate infrastructure and potential environmental concerns. The findings from field observations contributed to data triangulation, enhancing the validity of the study by cross-referencing information from surveys and interviews. The process of collecting primary data is detailed in Subchapter 6.3.

Research Framework Design

The combination of in-depth interviews, quantitative surveys, and field observations ensured that data were collected from multiple perspectives, providing a comprehensive and thorough reflection of the various aspects of ecotourism in the BTT region. In-depth interviews allowed for deeper exploration and clarification of context, while quantitative surveys provided reliable statistical evidence. At the same time, field observations offered a vivid account of the current state of culture, environment, and infrastructure. The entire research process is illustrated in Figure 1.4.

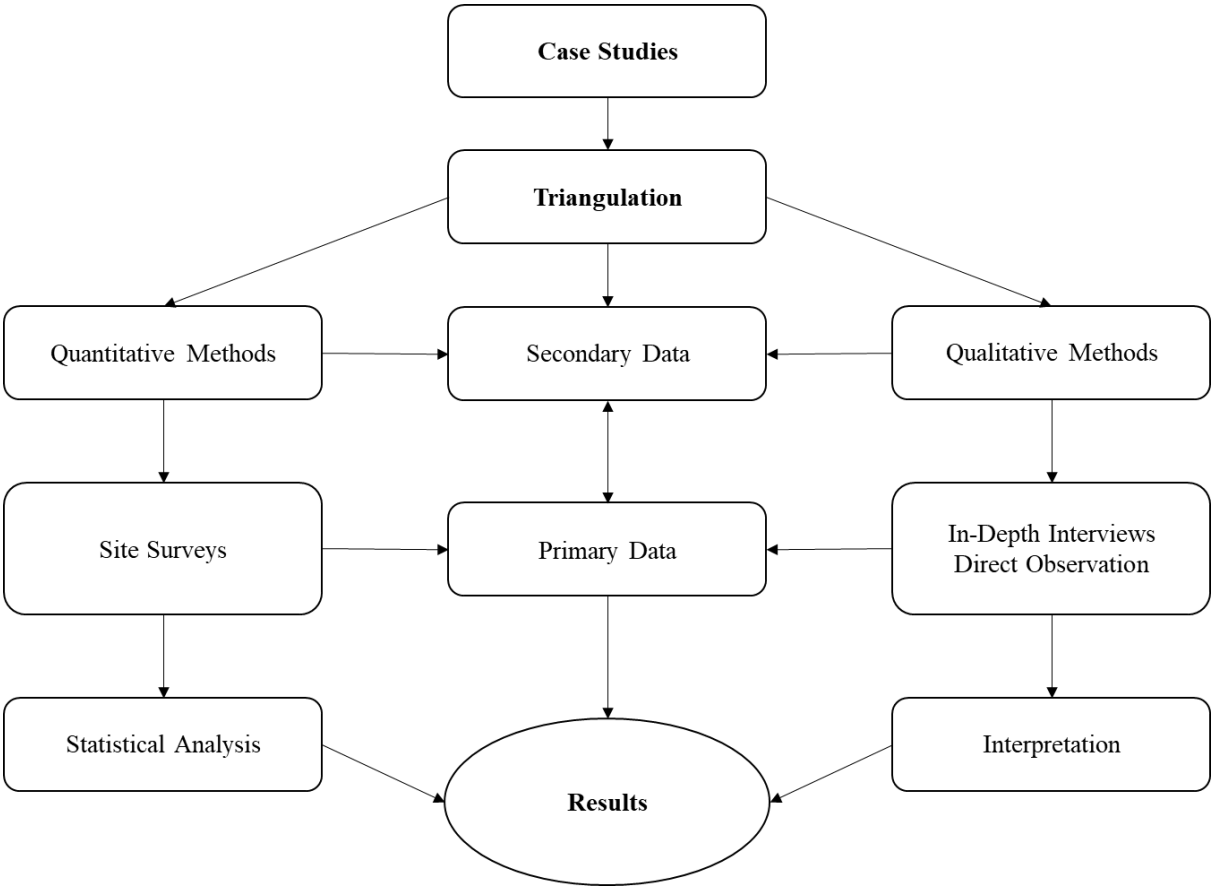

Figure 1.4. Research Framework Design

Research Permissions and Ethical Considerations

Before conducting the study, obtaining permission from the relevant authorities and organizations is essential to ensure the legality and compliance with local or institutional regulations where the research takes place (Tosun, 2000). Specifically, the researcher obtained an 'Introduction Letter' from the Hue University of Education to conduct the research and request secondary data from governmental and regulatory bodies in Vietnam. For the research conducted within the local community at the study sites, the researcher first contacted community leaders, local organizations, or community representatives to explain the purpose of the study and seek consent. Building good relationships with these stakeholders helped foster trust and garner support from the community. The researcher also familiarized themselves with the cultural values, customs, and traditions of the local communities, particularly the ethnic minority groups in mountainous areas, to avoid causing any offense or conflict during the research process.

Regarding the ethical issues, when conducting a research investigation, it is crucial to understand the ethical considerations and how they may influence the research (Polonski, 2004). Fisher and Andrea (2008) also showed that ethics is a procedure, or perspective for

deciding how to act and analyze complex issues. Therefore, the role of the researcher is to assess whether there are any risks that participants may encounter. The study complies with ethical principles to protect the participants' rights and ensure that data collection does not harm them.

Firstly, all information collected from participants was kept confidential and not disclosed to third parties. Personal information was encoded and securely stored. To ensure confidentiality and anonymity, interviews and questionnaires were handled in an anonymous manner. The questionnaires were assigned unique codes to distinguish the samples without including the participants' names. In interviews, some participants were given pseudonyms when quoting their responses in the study.

Secondly, participants were provided with full information about the purpose of the research, the data collection methods, and their rights. They voluntarily agreed to participate, with the freedom to withdraw from the study at any time without any repercussions.

Thirdly, the researcher ensured that the study did not cause any infringement or harm to the participants or the community. In the case of photography, the researcher obtained oral consent from each participant. Furthermore, any use of images from external sources was approved by the researcher.

Finally, the researcher guaranteed that the study was unbiased and that sampling was conducted fairly, without discrimination based on gender, race, religion, or any other factor. By adhering to these principles, the research maintained legal and ethical integrity while positively supporting the local community and relevant stakeholders.

Chapter 2. Theoretical Foundations of Ecotourism Research

Chapter 2 lays the theoretical foundation for the study by clarifying key concepts and reviewing relevant research in the field of ecotourism. The structure of the chapter follows a logical progression from broad to specific, reflecting the conceptual narrowing from sustainable development to sustainable tourism, and ultimately to ecotourism.

Subchapter 2.1 begins with an introduction to the overarching concept of sustainable development, followed by a focused discussion on sustainable tourism development as one of its important applications. The section concludes by exploring the concept of ecotourism, which represents a specialized form of sustainable tourism. This conceptual framework is developed through a comprehensive literature review that incorporates both global perspectives and real-world experiences from Vietnam, helping to contextualize the theoretical discourse.

Subchapter 2.2 presents a bibliometric analysis of the concept of ecotourism. This subchapter explains the purpose of the bibliometric analysis and the methods used to collect and analyze data from reference materials. Finally, the results of the bibliometric analysis are presented and discussed.

2.1. The Concept of Sustainable Development

There has been a great deal of effort in recent decades to improve the understanding of sustainable development, both theoretically and practically (Parkin, 2000). Still, there is ongoing debate about the concept of sustainable development, which has become increasingly relevant in scientific research on environmental issues, environmental management policies, and industrial and agricultural production (Ruggerio, 2021). The term ‘sustainable development’ was first coined in 1980 in the publication of the World Conservation Strategy, published by the International Union for Conservation of Nature, with a simple premise – human development must not only focus on economic growth but also consider the needs of society and the environment (IUCN, 1980). However, this definition only emphasizes resource management and does not fully capture the comprehensive aspects of sustainable development. Assessing sustainability requires finding a balance between the demands of resource management and the pursuit of a better quality of life – or even determining whether these goals can be compatible (Kuhlman and Farrington, 2010).

In 1988, the Food and Agriculture Organization (FAO) adopted its definition of sustainable development. According to the FAO, sustainable development is the management and sustainable use of the natural resource base, and the orientation of technological and

institutional change in such a manner as to ensure the attainment of continued satisfaction of human needs for present and future generations. Such sustainable development conserves land, water, plants, and animal genetic resources, does not degrade the environment, is technologically sound, is economically sustainable, and is socially responsible (Garcia et al., 2000). The above definition indicates the three principles of sustainability related to the need 1) to conserve and sustainably use the multiple resources in its environment; 2) to meet the social and economic needs of human beings; and 3) for management to guide the required changes in institutions and technology (Garcia et al., 2000).

In 1987, the Brundtland Commission's seminal report – 'Our Common Future', established a groundbreaking definition of sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own. This report emphasized that sustainable development is not a static state of equilibrium but rather an ongoing process of change that harmonizes present and future needs and aspirations (WCED, 1987). Brundtland's concept of sustainable development primarily focuses on the efficient utilization of natural resources and the creation of an environment conducive to human life throughout the development process. The vagueness of this definition has contributed to its wide acceptance and widespread use in scholarly works, national constitutions, and regulations, sparking ongoing discussions about the concept of sustainable development (Luke, 2005; Kuhlman and Farrington, 2010; Zemigala, 2019).

The Brundtland's definition established a cornerstone and served as a springboard for subsequent definitions of sustainable development, significantly influencing a vast body of literature on the subject, including the works of Barkemeyer et al. (2014), Carvalho (2001), Hopwood et al. (2005), and Redclift (2005). These scholars concur that sustainable development must encompass sociocultural, ecological, and economic sustainability, forming a three-dimensional framework akin to a three-legged stool (Munasinghe, 1993). Van-der-Merwe and Van-der-Merwe (1999) further emphasize that sustainable development entails a concerted effort to reshape economic development patterns, ensuring a fundamentally high quality of life for all while safeguarding the ecosystems and social structures that underpin human well-being. A notable convergence exists in the identification of core elements of sustainable development across the economic, environmental, and social spheres (Murcott, 1997).

However, certain studies claim that Brundtland's definition is still nebulous (Wackernagel and Rees, 1998; Millar et al., 2019)**;** making it challenging to establish precise criteria for evaluating sustainability and selecting suitable indicators for measurement (Zhang

and Zhu, 2020). Two glaring issues arise: Firstly, the term ‘need’ lacks clear definition, and secondly, the definition fails to provide a specific timeframe, as ‘generations’ can be interpreted ambiguously (Alphonse and Ricardo, 2003). In addition, Brundtland’s definition obscures the inherent tension between long-term sustainability and immediate welfare, a crucial distinction between sustainability and sustainable development (Parkin, 2000; Kuhlman and Farrington, 2010). This has spurred ongoing debates about the attainment of sustainability. One manifestation of this controversy lies in the divergent perspectives on sustainable development among various interest groups (Vucetich and Nelson, 2010). For eco-centric groups, it primarily prioritizes ecosystem health, whereas for people-centered groups, it focuses on more effective fulfillment of human needs, and for economists, it signifies maintaining a stable economy (Imran et al., 2014).

According to Luke (2005)**,** redefining ‘sustainability’ and ‘progress’ as guiding principles is essential to establish a truly environmentally friendly political economy. Buchdahl and Raper (1998) concur, emphasizing the fundamental role of the ‘natural economy’ as a prerequisite for the functioning of a market economy and a human-driven civilization. Moreover, Vucetich and Nelson (2010) posit that a comprehensive understanding of sustainability necessitates the development of its ethical component. Sustainable development must transcend its anthropocentric roots to embrace eco-centric principles (Abedi-Sarvestani and Shahvali, 2008). However, Ingwe et al. (2010) contend that climate change and the global financial crisis highlight the inadequacy of both eco-centric and anthropocentric approaches to achieving sustainable development. Therefore, Kuhlman (2010) suggests a return to the term’s original meaning, emphasizing the well-being of future generations, particularly regarding the preservation of irreplaceable natural resources, over immediate demands.

According to Ruggerio (2021), a comprehensive definition or conceptual model of sustainability should incorporate the following criteria: 1) a holistic approach that considers the intricate interplay of economic, ecological, social, and political factors within socio-ecological systems; 2) intergenerational and intragenerational equity; and 3) an understanding of the hierarchical organization of nature. Zhang and Zhu (2020) redefined sustainable development as achieving higher and more equitable distribution of well-being within ecological limits, building upon the Brundtland report’s original definition. This study established four criteria to assess national progress towards sustainable development: 1) improved and more equitable levels of happiness; 2) reduced ecological consumption; 3) enhanced ecological capacity; and 4) optimal efficiency. The definition provided by Zhang

and Zhu (2020) offers a clearer and more detailed conceptualization of sustainable development, providing a precise definition of both 'development', and 'sustainability' making it instrumental in establishing specific standards and selecting relevant indicators to evaluate and measure a nation's progress towards sustainable development.

Consequently, despite the efforts of scholars to redefine and refine the concept of 'sustainable development', the debate surrounding its meaning has remained contentious and seemingly intractable due to the multifaceted nature of the concept and the diverse perspectives held by various stakeholders (Ruggerio, 2021). Ultimately, the determination of whether or not a development endeavor is sustainable can only be made through the lens of real-world outcomes (Costanza et al., 2016). The concept of 'sustainable development' has continuously evolved and expanded, significantly influencing the pursuit of sustainable development in the natural, ecological, environmental, social, and cultural spheres. However, it is essential to acknowledge that each locality and nation possess unique institutional, social, and cultural contexts that must be considered when interpreting, adapting, and applying sustainable development concepts in practice.

Sustainable Development in Vietnam

For many developing countries, including Vietnam, the term 'sustainable development', (also the terms 'sustainable tourism development' and 'ecotourism', discussed later) were initially introduced, referenced, and developed by international agencies, non-governmental organizations, and foreign scientists (Cobbinah, 2015a). The concept of sustainable development in Vietnam has been officially adopted as a guiding principle for the country's development since 1992 (Guzikova and Van, 2019). The concept has also been enshrined in numerous high-level legal documents, including resolutions, decisions, and laws (NAVN, 2017b, 2020; PMVN, 2012a, 2012b, 2014, 2017a). These definitions all emphasize the need to strike a balance between economic, social, and environmental factors, protect the rights of future generations, and meet the needs of the present generation in a sustainable manner. Overall, these definitions are rooted in the fundamental aspects of the concept outlined in the Brundtland Report.

The concept of sustainable development has garnered significant attention from both researchers and policymakers in Vietnam (Tien et al., 2008). According to Tien (2008), sustainable development in Vietnam is approached from two perspectives. Firstly, it entails development that preserves the values of the natural environment, a crucial factor in any development endeavor. Secondly, it emphasizes long-term development that benefits both the

present and future generations, ensuring that today's actions do not compromise the well-being of tomorrow. In addition, numerous studies have sought to operationalize the concept of 'sustainable development' to align with the specific context of Vietnam. One example is the study 'Research on developing national criteria for sustainable development in Vietnam' (IERSD, 2003) conducted by the Vietnam Union of Science and Technology Associations. Drawing upon the Brundtland report's criteria for sustainable development and the experiences of countries like China, the United Kingdoms, and the United States, the researchers proposed specific criteria for sustainable development in Vietnam, including: economic sustainability, social sustainability, and environmental sustainability. They also presented options for selecting criteria tailored to Vietnam's unique circumstances. In addition, Nam (1997) identified five sets of criteria that embody the essence of sustainable development: 1) social development; 2) economic development; 3) environmental protection; 4) political development; and 5) international development indicators.

In general, a recurring feature of research projects in Vietnam is the operationalization of the sustainable development concept in accordance with the Brundtland report (So, 2009) and the subsequent updates and expansions proposed by the United Nations. These criteria fundamentally encompass all aspects of nature, environment, economy, society, and culture. Notably, researchers have made substantial efforts to operationalize the concept, leading to the development of indicators and quantification of various issues related to sustainable development in Vietnam. However, the presented indicators remain somewhat general and list-like, necessitating further consideration of their appropriateness and adaptability to the specific realities of Vietnam, particularly across different sectors and levels. Furthermore, these criteria lack a harmonious balance between qualitative and quantitative measures for assessing sustainable development, which could impede its effective implementation across various fields in contemporary Vietnam. Despite these challenges, Vietnam has demonstrated a strong commitment to sustainable development, evident in the emphasis placed on this concept from the 7th Party Congress Resolution (1991) to the 12th Party Congress Resolution (2016), where sustainable national development has always been emphasized (Chien, 2020). In pursuit of achieving sustainable development goals, the Government of Vietnam issued the 'Strategic Orientation for Sustainable Development in Vietnam' – Vietnam's Agenda 21 (PMVN, 2004). This framework strategy provides a comprehensive set of guidelines and principles for ministries, sectors, localities, organizations, and individuals to implement and coordinate actions towards sustainable development in the 21st century. The document also

identifies the challenges Vietnam faces, outlines policies, legal tools, and priority areas of activity that need to be addressed to achieve sustainable development in the 21st century.

2.2. The Concept of Sustainable Tourism

Since the publication of the Brundtland report in 1987, the concept of 'sustainable tourism' has emerged as a prominent force shaping the field of tourism research and academia (Bramwell and Lane, 2012). This concept continues to generate debates, discussions, and criticisms within the realm of tourism research (Mika, 2015; Ruhanen et al., 2015). Sustainable tourism development and sustainable development share a close relationship. Today, sustainability serves as a policy goal for a vast array of tourism activities and environments, encompassing diverse scales (Moscardo, 2008b). Sustainability in tourism manifests itself in three interconnected dimensions: economic, social, and environmental. The economic aspect strives to fulfill local economic needs, maximizing benefits while minimizing costs to enhance the vitality of the tourism (Kim et al., 2017). Specifically, sustainable tourism on an economic level aims to create job opportunities, raise incomes, improve infrastructure, and elevate living standards (Mbaiwa, 2005). The cultural and social aspect emphasizes safeguarding local environments, cultural and social resources of the community, and fostering interactions between people and the environment (Ek Styvén and Mariani, 2020). This aspect focuses on initiatives that promote cultural exchange and engagement between suppliers, tour companies, locals, and tourists (Mathew and Sreejesh, 2017). Finally, the environmental aspect of sustainability prioritizes the protection of the natural environment, biodiversity, and responsible utilization of renewable and non-renewable resources (Iniesta-Bonillo et al., 2016). This aspect also addresses the economic benefits of environmental protection at a tourist destination, aiming to reduce negative impacts of visitors and educate and engage them and locals in environmental protection initiatives. When considering the principles of sustainable tourism, the perspectives of all stakeholders involved in the tourism should be considered equally with other factors (Butowski, 2021). In light of these considerations, it is argued that sustainable development necessitates a more comprehensive conceptualization to meaningfully assess and critique its interrelationships with natural, social, and economic factors across various scales and time periods (Farrell and Twining-Ward, 2004; Zajadacz et al., 2024).

Based on the basic principles of the Brundtland report, the World Trade Organization (WTO, 1998) defines sustainable tourism development as meeting the needs of current tourists and host regions while safeguarding and amplifying opportunities for the future. This

definition essentially draws upon the concept of sustainable development outlined in the Brundtland Report. However, several scholars maintain that this concept is inherently flawed and raises concerns about its ambiguity. For instance, Butler (1999) highlights the lack of specificity regarding human needs, the timeframe for determining whether those needs are adequately met, and the uncertainty that arises when needs may conflict. Butler also provides a valuable framework for addressing these issues by distinguishing between two related concepts: 1) sustainable development in the context of tourism and 2) sustainable tourism. According to Butler (1999)**,** sustainable development, in the context of tourism, refers to tourism development in a specific area that can be sustained over an indefinite period of time without causing environmental harm and while allowing for the successful development of other activities. On the other hand, sustainable tourism is tourism development that can be sustained over an indefinite period of time. Bramwell and Lane (1993) argue that sustainable tourism emerged partly as a response to a multitude of tourism-related challenges, including environmental degradation and severe impacts on traditional societies and cultures. As a result, sustainable tourism is viewed as a solution to ensure positive benefits and establish effective approaches to regulating and controlling development (Bramwell and Lane, 2012).

McMinn (1997) contends that the term 'sustainable tourism' is intricately linked to specific aspects of tourism, encompassing the ecological sustainability and environmental integrity of a country or a region. Sustainable tourism is viewed from economic, social, cultural, and environmental perspectives. It entails harnessing the resources of a place while striking a harmonious equilibrium between potential and existing activities. Additionally, well-being, equity, poverty alleviation, and the empowerment of local communities are inextricably linked to sustainable tourism endeavors (Dłużewska, 2019). Sustainable development is implemented to enhance the quality of life for local residents by optimizing local economic benefits, safeguarding both natural and built environments, and providing high-quality experiences for tourists (Bramwell and Lane, 1993; Park and Yoon, 2009). Similarly, other authors assert that sustainable development often tends to be defined as a less interdisciplinary approach, emphasizing growth to maintain the ability for long-term existence (Timothy and Wall, 1997). Some authors define sustainable development in a broader sense, applying sustainable development principles within the context of tourism demand (Hardy et al., 2002).

In response to the criticisms of the original definition, in 2004, the UN Tourism refined its definition of sustainable tourism as the development of tourism activities that satisfy the present needs of tourists and local residents while also prioritizing the preservation and

conservation of resources for future tourism development. Sustainable tourism aims to address the economic, social, and aesthetic needs of people while safeguarding the integrity of cultural heritage, biodiversity, and ecosystem development, ensuring the continued functioning of life support systems (UN Tourism, 2004). This revised definition broadens the scope of sustainable tourism to encompass a comprehensive range of aspects, activities, and factors. It places a strong emphasis on local communities, environmental protection, and cultural preservation. Subsequently, the United Nations Conference on Sustainable Development (Rio+20), held in Rio de Janeiro in June 2012, commemorated the 20th anniversary of the 1992 Rio conference, where the concept of sustainable development was formally acknowledged. The high-level Rio+20 conference delved into the positive advancements made in implementing the principles of sustainable development over the past two decades while highlighting the significant challenges that lie ahead (Jovicic, 2014). The conference's documents underscored the only viable path for social development, emphasizing poverty eradication, the pursuit of a just society, and natural resource conservation (Robertson, 2021). In conclusion, sustainable tourism provides valuable guidance for tourism development, encompassing environmental, social, economic, and climate-sensitive planning and management practices.

Thus, the evolution of the debate on sustainable tourism has transcended environmental concerns to encompass economic, social, cultural, political power, and social equality issues. From this multifaceted perspective, sustainable tourism can be viewed as a sub-category of sustainable development. Sustainable tourism development, therefore, entails the development of tourism in a specific area that is appropriate in terms of content, form, scale, and long-term sustainability. This approach ensures that tourism does not degrade the environment or hinder the ability to support other development activities. Sustainable tourism can be best conceptualized as either an 'adaptive model' (Hunter, 1997) or an 'adaptive management' (Farrell and Twining-Ward, 2004). It is now widely recognized that sustainable tourism is not a specific tourism product but rather an overarching goal to be strived for. As a result, research on sustainable tourism has been translated into practical action to support the sustainability of all tourism endeavors.

Sustainable Tourism in Vietnam

Since the initiation of the economic renovation campaign 30 years ago, Vietnamese leaders have recognized sustainable tourism as a crucial service sector within their long-term economic development strategy (Jansen-Verbeke and Go, 1995; Dao, 2013; Le, 2020). In parallel with its remarkable economic growth (Tung, 2019), Vietnam has emerged as a burgeoning tourism market in recent years (Hampton et al., 2018). However, drawing upon lessons learned and practical experiences in sustainable tourism development from other countries around the globe, tourism development in Vietnam is shifting towards a more responsible approach to resource management and environmental stewardship (Dong, 2012). Several research endeavors have delved into the concept of sustainable tourism as a theoretical foundation in Vietnam, including the Sustainable Development Strategy Orientation in Vietnam (MPI, 2004), Agenda 21 Vietnam (Agenda 21 Vietnam, 2012), Sustainable Tourism (Hieu, 2001), and most importantly, the Law on Tourism (LOT). According to the LOT (2017), sustainable tourism is defined as tourism developed by respecting, safeguarding, and sustainably utilizing cultural, historical, natural, and environmental values while simultaneously ensuring economic and social development and protecting the interests of stakeholders. In alignment with the interpretation of the concept of sustainable tourism development in the Law on Tourism, Tuan (2019) emphasizes that to foster sustainable tourism, the following requirements must be met simultaneously: ecosystem preservation, maintenance of ecosystems as life-supporting systems, and protection of the diversity and stability of species and ecosystems. This international standard necessitates that tourism activities and infrastructure be compatible with environmental conditions. Moreover, cultural identity must be preserved, and the quality of life and unique cultural traditions, such as religion and art, must be protected and sustained.

Although Vietnamese academics have not yet reached a unified definition of sustainable tourism development, most agree on its key components. It is generally viewed as the management of natural and human resources to meet tourist needs, ensure long-term economic benefits, conserve and enhance resources, preserve cultural integrity, protect the environment for future tourism, and improve the living standards of local communities (Luong, 2002b). Summarising the discussion, one can state that, in general, definitions of sustainable tourism in Vietnam underscore the significance of protecting and sustainably utilizing cultural, historical, natural, and environmental values while ensuring economic and social development, addressing the needs of tourists and the tourism in a sustainable and responsible manner.

2.3. The Concept of Ecotourism

This subchapter provides a comprehensive overview of the concept of ecotourism through two main analytical approaches: qualitative analysis to clarify the fundamental factors and characteristics of ecotourism, and quantitative analysis using bibliometric methods to assess the development and research trends in this field.

2.3.1. The Review of Defintions

Ecotourism is a form of sustainable tourism that strives to fulfill the requirements of sustainable development on a global scale (Fennell, 2020a). The concept of ecotourism gained traction in response to the detrimental social and environmental consequences associated with mass tourism, which prioritizes economic gains and expansion over environmental conservation and community-centric goals (Ziffer, 1989). This subject has drawn significant attention and debate among academics due to its classification as an alternative tourism model distinct from conventional tourism (Fennell, 2009). While some scholars contend that ecotourism may exhibit heightened ethical responsibility, others emphasize its focus on preserving natural life forms and minimizing human impact (Tisdell, 1996). Generally, many researchers concur that ecotourism is often employed interchangeably with terms such as sustainable tourism, responsible tourism, ethical tourism, nature tourism, cultural tourism, and heritage tourism (Blamey, 1997; Weaver, 2001b). Nevertheless, this overlap with comparable tourism types complicates a precise comprehension of ecotourism as a concept (Chandel and Mishra, 2016).

One of the most widely recognized definitions of ecotourism is attributed to Hector Ceballos-Lascurain. According to this author, ecotourism entails ‘traveling to relatively undisturbed or uncontaminated natural areas with the specific purpose of studying, appreciating, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas’ (Ceballos-Lascurain, 1987, p. 14). This simplified definition primarily portrays ecotourism as visiting natural areas for the sake of pleasure and learning (Fennell, 2009). Although this definition contributes to comprehending the essence of ecotourism, Shores (1992) argues that it concentrates almost exclusively on the motivations of tourists, overlooking the influence of the tour on the cultural and ecological settings it engages with.

In 1990, the International Ecotourism Society (TIES) provided a more streamlined definition of ecotourism as responsible travel to natural areas with the aim of conserving the environment and safeguarding the well-being of local communities (TIES, 2013). The TIES’

definition emphasizes adhering to six principles: 1) minimize impact; 2) foster environmental and cultural awareness and appreciation; 3) provide positive experiences for both visitors and hosts; 4) generate direct financial contributions for conservation; 5) provide financial and empowering benefits for local communities; and 6) cultivate sensitivity to the host country's environmental, social, and political context (McLaughlin, 2011). The TIES's definition aligns with and is further elaborated upon by the International Union for Conservation of Nature's (IUCN) explanation of ecotourism. According to the IUCN (1996b), ecotourism is responsible tourism to natural areas that contributes to environmental conservation, minimizes visitor impact, promotes an appreciation of nature (and its accompanying cultural features, both past and present), and generates socio-economic benefits for local communities. This definition encompasses various components; however, the 'environmental responsibility' component already encompasses environmental education and contributions to conservation, leading to some redundancy within the definition.

The definition of ecotourism continues to evolve and is actively debated in social and ecological literature (Fennell, 2001b; Honey, 2008). For instance, through an analysis of 85 definitions of ecotourism, Fennell (2001b) revealed that value-based aspects such as conservation, ethics, sustainability, education, and community benefits tend to be more prominent in recent proposals. Building upon this, Fennell and Dowling (2003) presented a more comprehensive understanding of ecotourism as a sustainable form of tourism that relies on natural resources, primarily geared towards a deeper experience and understanding of nature, and managed ethically to minimize impact, avoid resource consumption, and prioritize local control and benefits for communities. During this period, researchers gradually reached a consensus, largely due to contributions from Blamey (2001), who established three core criteria for ecotourism: 1) attractions should primarily be nature-based; 2) visitor interactions with these attractions should be focused on learning or education; and 3) product experience and management must adhere to principles and protocols associated with sustainability in ecological, socio-cultural, and economic terms. The author also connected the ethical components of ecotourism to the educational experience and conservation of natural and cultural resources, both of which are crucial to the study of ecotourism.

Another influential document on ecotourism, the Quebec Declaration on Ecotourism (2002), recognizes that ecotourism not only encompasses the tenets of sustainable tourism but also embodies the following specific principles: 1) actively contributing to the preservation of natural and cultural heritage; 2) involving local and indigenous communities in planning, development, operations, and contributing to their well-being; 3) interpreting natural and

cultural heritage to visitors; and 4) encouraging independent tourists, as well as organized tours for small groups.

However, despite initially agreeing that ecotourism was a positive alternative to mass tourism, some opinions differ regarding its true meaning or purpose (Cobbinah, 2015a). For instance, Drumm and Moore (2005) and Courvisanos and Jain (2006) suggest that ecotourism is merely a marketing ploy and can be misused, with nature-based tourism programs often producing negative environmental and social impacts under the guise of ecotourism. In addition, other researchers have raised concerns about the widening gap between ecotourism's theory and practice due to inconsistencies in its interpretation (Donohoe and Needham, 2006). According to Hillel (2002), ecotourism should integrate the three goals of sustainable development and make a positive contribution to the protection of sensitive ecosystems and protected areas by supporting financial and political initiatives. It should also ensure active participation from economic and social organizations to benefit local communities and indigenous peoples, along with providing environmental education for community hosts, professionals, and guests. Amidst various debates surrounding the definition of ecotourism, Chandel and Mishra (2016) identified six core components of ecotourism that are widely accepted by researchers and can be used to form a basic understanding of ecotourism. These components include: 1) nature-based tourism; 2) support for conservation; 3) learning and interpretation; 4) local socio-economic development; 5) support for and respect of local culture; and 6) local community involvement.

The concept of ecotourism has continuously expanded and evolved over time. From an activity primarily focused on nature, it has transformed into a sustainable development strategy that aligns with economic, social, and environmental conservation goals. The current trend emphasizes the close integration of conservation and development, while ensuring the active participation of local communities in tourism activities (Table 2.1).

Table 2.1. Chosen Definitions of Ecotourism

Authors	The definition of ecotourism
Ceballos-Lascurain, 1987	Traveling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas
Laarman, 1987	Nature tourism in which the traveler is drawn to a destination because of his or her interest in one or more features of that destination's natural history. The visit combines education, recreation, and often adventure
Ziffer, 1989	A form of tourism inspired primarily by the natural history of an area, including its indigenous cultures. The eco-tourist visits relatively undeveloped areas in the spirit of appreciation, participation and sensitivity. The eco-tourist practices a non-consumptive use of wildlife and natural resources and contributes to the visited areas through labor or financial means aimed at directly benefiting the conservation of the site and the economic well-being of the local residents
TIES, 1990	Ecotourism is responsible travel to natural areas that conserves the environment and improves the well-being of local people
Boo, 1990	Responsible travel to nature where the flora, fauna, and cultural heritage are the primary attractions in a way to conserve the environment and improve the well-being of local people
Whelan, 1991	Ecotourism done well can be a sustainable and relatively simple alternative (to overexploitation of a nation's natural resources). It promises employment and income to local communities and needed foreign exchange to national governments while allowing the continued existence of the natural resource base
Blangy and Wood, 1993	Responsible for travel to natural areas to conserve the environment and sustain the well-being of local people
IUCN, 1996a	Environmentally responsible travel and visitation to natural areas, to enjoy and appreciate nature (and any accompanying cultural features, both past, and present) that promote conservation, have a low visitor impact and provide for beneficially active socio-economic involvement of local people
Boyd and Butler, 1996	Ecotourism promotes the conservation of ecological and scenic values of tourist destinations
Brandon and Richard, 1996	Ecotourism is a subset of the spectrum of the tourism types which make up nature-based tourism
Khan, 1997	Ecotourism is purposeful travel to natural areas to understand the culture and natural history of the environment, taking care not to alter the integrity of the ecosystem, while producing economic opportunities that make the conservation of natural resources beneficial to the local people
Hall and Lew, 1998	Ecotourism is constructed around educational visits to areas of particular natural beauty, significant ecological processes, or unique plant and animal communities
Ross and Wall, 1999	Ecotourism has been identified as a form of sustainable tourism expected to contribute to both environmental conservation and development
Honey, 1999	Ecotourism is travel to fragile, pristine and usually protected areas that strives to be low impact and (usually) small scale. It helps educate the traveler; provides funds for conservation; directly benefits the economic development and political empowerment of local communities; and fosters respect for different cultures and for human rights
Bjork, 2000	An activity where the authorities, the tourism, tourists and local people cooperate to make it possible for tourists to travel to genuine areas in order to admire, study and enjoy nature and

	culture in a way that does not exploit the resources, but contributes to sustainable development
Fennell, 2001	A sustainable form of natural resource-based tourism that focuses primarily on experiencing and learning about nature, and which is ethically managed to be low impact, and locally oriented (control, benefits, and scale). It typically occurs in natural areas, and should contribute to the conservation or preservation of such area
Weaver, 2001	Ecotourism is a form of nature-based tourism that strives to be ecologically, social-culturally, and economically sustainable while providing opportunities for appreciating and learning about the natural environment or specific elements thereof
Fennell, 2002	An intrinsic, participatory and learning-based experienced which is focused principally on the natural history of a region, along with other associated features of the man – land nexus. Its aim is to develop sustainability (conservation and human well-being) through ethically based behavior, programmers and models of tourism development which do not intentionally stress living and non-living elements of the environments in which it occurs
UN Tourism, 2002	Ecotourism contributes actively to the conservation of natural and cultural heritage; includes local and indigenous communities in its planning, developing, and operation, and contributes to its well-being; interprets the natural and cultural heritage of the destination to visitors; and lends itself better to independent travelers, as well as to organized tours of small group sizes
Tao et al., 2004	Ecotourism is conceptually defined as a form of tourism taking place in a natural setting, providing environmental education, respecting natural conservation, and maintaining the sustainable management of an integrated environment as its goal
Drumm and Moore, 2005	Ecotourism is a form of tourism that aims to minimize environmental impacts and contributes to the economic development of local communities, ecotourism has shown prospects for successfully funding conservation and sustainable development program
Medina, 2005	Ecotourism is a form of tourism that 'must benefit local communities'
Zeppel, 2006	According to indigenous ecotourism, the nature-based attractions are developed upon the basis of indigenous values, are possessed by indigenous people, and have indigenous interpretations for local natural resources and indigenous culture
Fung and Wong, 2007	Tourism that has sustainable natural resources is called ecotourism
Weaver and Lawton, 2007	Ecotourism should provide both an educational experience for tourists and economic, sociocultural, and environmental sustainability for the destination
Ryngnga, 2008	Ecotourism, which is known as ecological tourism, is a form of tourism that attracts ecological and socially conscious individuals
Buckley et al., 2008	Ecotourism has been widely facilitated by the authorities of protected areas in many countries that promote the sustainable development of tourism
Stubelj Ars and Bohanec, 2010	Ecotourism can be described with the following five concepts: nature conservation, low impact, sustainability, meaningful community involvement, and environmental education
Jalani, 2012	Ecotourism is a strategy for supporting conservation and providing income for communities in and around protected areas. It can contribute to economic development and conservation of protected areas by a) generating revenues that can be used to sustainably manage protected areas, b) providing local employment, and c) inculcating a sense of community ownership)
Bunruamkaew and Murayama, 2012	Ecotourism emerged as an alternative form of tourism in the 1990s to mitigate the faults of conventional (mass) tourism in meeting the needs of sustainable development
Kiper, 2013	Ecotourism, as an alternative tourism, involves visiting natural areas in order to learn, study,

	or carry out activities that are environmentally friendly, that is, a tourism based on the nature experience, which enables the economic and social development of local communities
Jeong et al., 2014	Ecotourism is a significant topic, which has been identified as a sustainable tourism form expected to contribute to both environmental conservation and economic development
Cobbinah, 2015b	Ecotourism is a sustainable development strategy based on five principles; It has the potential to: stimulate the conservation of the environment, encourage community participation (working in cooperation with the local population), the empowerment of vulnerable groups (e.g., women), deliver economic benefits (e.g., jobs), and preserve the local culture
Mehmood, 2017	Responsible travel to areas, that intends to support environmental conservation with minimum or no negative impact, involves awareness and education of stakeholders and at the same time helps in the upliftment of local communities
Stronza et al., 2019	Ecotourism is both an expansion and a refinement of the connection between tourism and conservation. It builds on the idea of using tourism to reinforce conservation and vice versa, while deepening the criteria for sustainability

To provide enhance understanding of the evolution of the ecotourism concept over time, a structured historical overview is presented, divided into four distinct developmental phases. This chronological breakdown – spanning from the late 1980s to the present – offers an original synthesis that highlights the shifting focus of ecotourism, from nature appreciation to broader concerns of sustainability, community development, and global integration. By tracing these conceptual transformations, the analysis contributes to a deeper theoretical foundation for evaluating ecotourism practices in both local and global contexts.

1) Initial Phase (1987–1990): Nature-based approach

   Ecotourism during this period reflects a growing societal awareness of the value of nature amidst rapid urbanization and industrialization. However, early definitions lacked integration of local community involvement or conservation responsibilities, focusing instead on personal enjoyment. Definitions by pioneers such as Ceballos-Lascurain (1987), Laarman (1987), and Ziffer (1989) emphasized activities centered on exploring and appreciating nature. The focus was on tourism in relatively undisturbed natural areas, with objectives of education and enjoyment of landscapes, wildlife, flora and fauna, and local cultural values. Ziffer's definition introduced the concept of 'non-consumptive use', referring to tourism activities that do not exploit natural resources.

2) Expansion Phase (1990–2000): Integration of responsibility and community development

   From 1990 onwards, definitions began to incorporate notions of responsibility in environmental protection and improving the livelihoods of local communities (Boo, 1990; Whelan, 1991; IUCN, 1996a). These definitions reflect a broadening of ecotourism from individual exploration to encompassing its social, economic, and

environmental impacts. TIES (1990) introduced the concept of ‘responsible tourism’, shifting the focus from mere nature exploration to conservation and economic support for local people. A significant advancement came with Honey’s (1999) contribution, which highlighted visitor education, respect for culture and human rights, and the prioritization of small-scale tourism to mitigate negative impacts.

3) Consolidation Phase (2000–2010): Towards sustainable development

This phase marked a transition from theoretical discussions to practical implementation. Ecotourism emerged as a tangible tool to address social and environmental challenges while simultaneously supporting economic development. Definitions by Fennell (2001a), Weaver (2001c), and the UN Tourism (2002) emphasized comprehensive sustainability, focusing on three pillars: environmental, economic, and socio-cultural dimensions. The concept of ‘community participation’ gained prominence, aiming to ensure economic and social benefits for local populations. Stubelj Ars and Bohanec (2010) encapsulated ecotourism through five core elements: 1) nature conservation, 2) low-impact activities, 3) sustainability, 4) meaningful community engagement, and 5) environmental education.

4) Modern Phase (2010–Present): Strategic vision and global integration

The emergence of global challenges, such as climate change, biodiversity loss, and social inequality, necessitated the integration of comprehensive solutions into ecotourism. Since 2010, definitions by scholars such as Jalani (2012) and Cobbinah (2015b) have highlighted the strategic role of ecotourism in addressing global issues like poverty, inequality, and environmental degradation. Stronza et al. (2019) introduced a new perspective by emphasizing ‘the nexus between tourism and conservation’, underlining tourism’s role as a tool to reinforce and expand sustainable development criteria. Concurrently, modern trends, such as digital technology and the rise of independent travel, have made ecotourism more adaptable and accessible, particularly on a small scale.

Thus, discussions on ecotourism have gained prominence in both environmental and social conferences and journals worldwide, with expanded definitions incorporating ethical considerations or normative elements (Cobbinah, 2015a). Similarly to almost all definitions related to the subject (sustainable development, sustainable tourism), definitions of ecotourism will evolve depending on their purpose and context, and different aspects have been emphasized during different periods within the various definitions of ecotourism

(Eriksson, 2003). From the initial definition in 1987 to the present, the concept of ecotourism has progressed, shifting from a focus on minimizing the impact of tourism on the natural environment to a more responsible form of tourism that supports conservation, education, and improving the lives of local communities. Many definitions now emphasize the element of 'responsibility' in tourism activities (TIES, 2013). Ecotourism serves as a strategy that supports conservation and provides income for local communities through economic benefits, income-generating opportunities, and raising awareness of natural asset conservation (Jalani, 2012). It supports livelihood diversification, which is particularly crucial in remote areas with underdeveloped economies (Holland et al., 2003).

Ecotourism in Vietnam

In the 1990s, research on ecotourism in Vietnam began to emerge in academic journals and magazines (Huong and Long, 2020). By the end of the decade, ecotourism garnered national attention, with the involvement of the Vietnam National Administration of Tourism (VNAT) and numerous international organizations in the country (Luong, 2015). The organization of seminars on ecotourism development issues, such as the Workshop on Ecotourism and Sustainable Tourism Development in Vietnam (1998); the workshop 'Building a National Strategy for Ecotourism Development in Vietnam' (1999), and the scientific seminar 'Ecotourism Development in Biosphere Reserves: Opportunities and Challenges' (2004), served as early indications of growing interest among scholars. Consequently, the theoretical foundation for ecotourism in Vietnam has been partially established. The first consensus on ecotourism was reached at the Workshop on 'Building a Framework for Ecotourism Development in Vietnam', organized by the VNAT in collaboration with the World Conservation Organization and the Asia-Pacific Economic and Social Commission in 1999. According to this consensus, ecotourism is a type of tourism based on nature and local culture, associated with environmental education, and contributing to conservation and sustainable development with the active participation of local communities (Luong, 2015). The theoretical foundation for ecotourism has been further explored by organizations and scholars. Most research works concur with the concept of ecotourism as a type of tourism based on nature and local culture, associated with environmental education, and contributing to conservation and sustainable development with the active involvement of local communities (Lanh, 1998; Hoe and Hieu, 2001; Luong, 2002a).

The operations of ecotourism in Vietnam are guided by the 2017 Law on Tourism's definition of ecotourism (Dang, 2023), which is as follows: Ecotourism is a type of nature-

based tourism, associated with local cultural identity, community participation, and environmental education (NAVN, 2017c). However, this specific conceptualization of ecotourism exists on a limited scale and is confined to researchers and central government agencies. In the perception of the mass media and tour operators, ecotourism is variably conflated with nature-based tourism, farm tourism, cultural tourism, and resorts (Koeman and Vrulam, 1999), reflecting the above-mentioned emphasis in the region on softer ecotourism manifestations (Do, 2014).

Overall, although the definitions above are not entirely consistent, they have focused on explaining ecotourism to emphasize the close connection between the value of natural resources and the local cultural identity, thereby enhancing awareness and responsibility for conserving those values while also stressing the role and benefits of the local community in ecotourism activities.

2.3.2. Bibliometric Analysis

The growing popularity of ecotourism globally has opened up numerous opportunities for research in this field. In addition, the abundance of ecotourism-related publications has fueled demand for research that explores and analyzes their characteristics, trends, and impacts (Hasana et al., 2022). Bibliometrics is a technique that examines the evolving principles of a given field over time, based on the social structure, concepts, and knowledge it encompasses (Zupic and Cater, 2015). This method utilizes representative abstracts from existing literature to analyze and categorize bibliographic documents (Suban et al., 2021). As a result, researchers employ bibliometrics to identify emerging trends, intellectual structures, research characteristics, and gain deeper insights into collaborative patterns within a specific field of literature (Donthu et al., 2021).

Bibliometric indices were measured using the VOSviewer, a reliable software for bibliometric data analysis (van Eck and Waltman, 2010). This free software tool enables the creation, visualization, and exploration of maps based on network data.

In this context, bibliometrics can be employed to explore and analyze trends and opportunities in ecotourism research over a given period. Unfortunately, the scope of previous studies in ecotourism research has been rather limited. They have primarily relied on data extracted from the Web of Science database (Liu and Li, 2020); restricted their scope to articles published in selected journals (Khanra et al., 2021); examined publications from a single journal (Singh et al., 2021); and confined their discussion of ecotourism development to conservation areas (Hasana et al., 2022). Therefore, to address these limitations, the current

study employs the Scopus database. The analysis encompasses both qualitative and quantitative aspects of ecotourism research from 2002 to 2022, with the assistance of VOSviewer software. Specifically, the study aims to: 1) analyze the output of articles on ecotourism; 2) identify leading authors and journals in ecotourism research; 3) explore collaborative research trends; and 4) identify the primary research topics in the field of ecotourism. The study findings provide insights into the evolution of ecotourism research since 2002, shedding light on its characteristics and research domains. Furthermore, the analysis identifies new research directions that require further attention from researchers.

Data Collection

The first step in bibliometric analysis is to choose a suitable database, which is determined by its relevance to the research topic. The Scopus database was chosen for the current study (www.scopus.com). This comprehensive database of peer-reviewed literature provides abstracts and citations of scientific journals, books, and conference proceedings. It is maintained by Elsevier and requires a subscription to access. Scopus offers detailed information about documents that are recognized by the academic community (Caviggioli and Ughetto, 2019).

To conduct the sample search, a Boolean string was used to initially identify articles containing the keywords 'ecotourism OR eco-tourism'. These keywords were selected based on the experience of previous studies (Khanra et al., 2021; Hasana et al., 2022). These keywords could appear in the titles, abstracts, or author keywords; however, this study focused on searching for keywords in the titles to avoid retrieving indirectly unrelated documents (Niñerola et al., 2019). The time frame from 2002 to 2022 was selected to capture two decades of ecotourism development following the designation of 2002 as the International Year of Ecotourism by the United Nations. This milestone marked a global recognition of ecotourism's potential to contribute to sustainable development, and it spurred a significant increase in academic, institutional, and policy-related interest in the field. The initial search yielded 2,674 articles.

To refine the research sample, the process focused on selecting articles that were most directly relevant to the ecotourism topic. The refinement criteria included: 1) documents in the form of scientific journal articles; book chapters, conference papers, and books were excluded from the analysis; 2) scientific journal articles written in English; and 3) scientific journal articles published in the latest publication stage. The refinement criteria were established to ensure the academic rigor and relevance of the sources. Only peer-reviewed

scientific journal articles written in English and published in their final form were included, while book chapters, conference papers, and preliminary publications were excluded to maintain consistency and reliability in the analysis. As a result, 1,693 scientific journal articles from 572 different journals were selected and manually processed before being entered into the directory evaluation and analysis (Figure 1.1). The directory details of the articles were exported to an Excel spreadsheet for analysis, including journal title, publication date, author information, article title, keywords, abstract, and citation count.

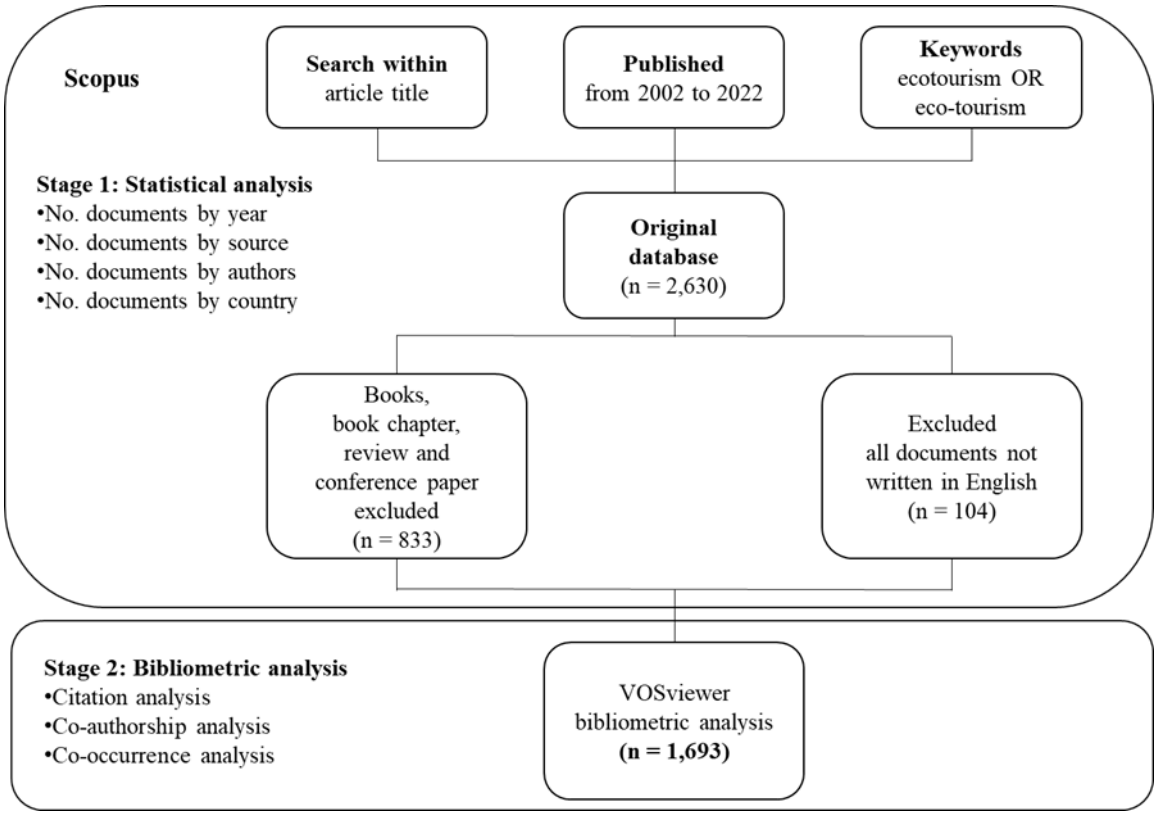

Figure 2.1. The Process of Data Collection

Method

Bibliometrics is a method for examining the evolving principles of a given field over time, based on its social structure, concepts, and knowledge base (Zupic and Čater, 2015). This approach utilizes representative abstracts from existing literature to analyze and categorize bibliographic documents (Suban et al., 2021). Researchers employ bibliometric analysis to identify emerging trends, intellectual structures, research characteristics, and gain insights into collaboration patterns within a specific field of literature (Donthu et al., 2021).

The study evaluated various bibliometric indices, including quantitative, qualitative, and structural indices (Durieux and Gevenois, 2010). Quantitative indices measure the output of journals or authors, while qualitative indices assess the significance and influence of authors,

publications, and journals. Structural indices, in contrast, reflect the connections and relationships among research topics, countries, and scholars. To measure these indices, the VOSviewer bibliometric analysis software was used. This is a reliable tool known for its advanced settings and suitability for bibliometric data research (van Eck and Waltman, 2010). It was utilized to compute and visually represent keyword networks using two types of maps: network visualization maps and overlay visualization maps (van Eck and Waltman, 2010).

Results and Discussions

The analysis of the number of articles published each year, top authors, journals and articles, trends in international collaboration, and keyword analysis provides a comprehensive overview of the ecotourism research during the period from 2002 to 2022.

Annual Publications

The number of annual publications on ecotourism has significantly increased over the past two decades, from 53 articles in 2002 to 228 articles in 2022, indicating a steady growth pattern (Figure 2.2). This surge in research can be attributed to the designation of 2002 as the International Year of Ecotourism, which spurred global efforts to enhance understanding of ecotourism (Fennell, 2001b). The number of published articles witnessed minor fluctuations between 2003 and 2008, followed by a significant upward trend from 2009 onward. This growth coincides with the expansion of ecotourism research in developing countries (Mowforth and Munt, 2008). These data suggest that ecotourism has emerged as a burgeoning research field, attracting the attention of scholars worldwide.

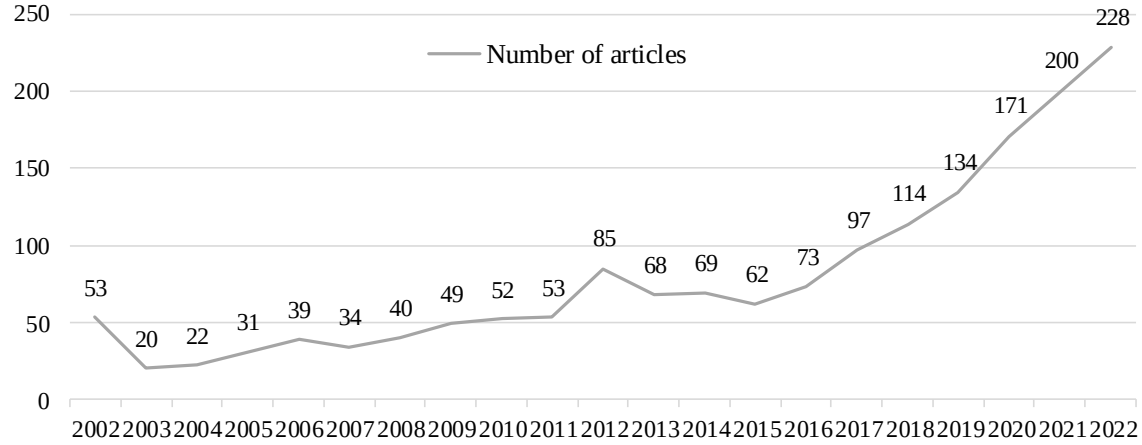

Figure 2.2. Number of Articles (2002-2022)

Leading Journals

The number of articles published and the number of citations received can be used to gauge the popularity of journals, authors, and articles in the field of ecotourism. Citation count is a measure of the recognition a published article has gained in academia (Caviggioli and Ughetto, 2019). However, it should be noted that this technique only reflects a publication's popularity and not its significance within a research domain (Khanra et al., 2020).

This study analyzed a total of 572 journals from various fields that published research articles related to ecotourism. Table 2.2 lists the top 10 journals based on their number of published articles and citations. These journals collectively account for only 27.4% of the total articles (490 articles), yet they represent up to 53.6% of the total citations in the sample. The *Journal of Ecotourism* tops the list with 141 articles and 3,550 citations. Established in 2002 by the International Ecotourism Society and published by Routledge, this journal publishes theoretical, empirical, and conceptual research on the social, economic, and ecological aspects of ecotourism, contributing innovative ideas and models for planning, management, and practice in the field (Singh et al., 2021). *The Journal of Sustainable Tourism* comes in second for both indices with 68 articles and 3,489 citations. Given that it is the only journal dedicated solely to sustainable tourism research (Lu and Nepal, 2009), it is a natural fit for ecotourism-related studies.

The journal *Sustainability* ranks third in terms of the number of published articles (49 articles) among all sources. Edited by the Multidisciplinary Digital Publishing Institute (MDPI), an open-access publisher, it is a multidisciplinary international academic journal established in 2009. Focusing on scientific publications related to sustainable development in the fields of environment, culture, economy, education, and society, it has gained a significant following in the ecotourism research community. However, due to its relatively young age, its citation count has not yet reached a significant level (Niñerola et al., 2019).

Well-established comprehensive tourism journals, such as *Annals of Tourism Research* and *Journal of Travel Research*, also appear on the list with substantial numbers of articles and citations. *The Journal of Destination Marketing and Management* holds the top position in the subcategory of the Destination Management, Hospitality, and Leisure in Scimago (Scopus) and the Journal Citation Reports rankings (Niñerola et al., 2019). Consequently, the number of articles and citations for this journal remains relatively stable (26 articles and 2,426 citations).

Out of the 572 journals analyzed, 64.5% (369 journals) published only one article, indicating that they are not specialized journals in the field of ecotourism. However, the high

representation of non-specialized journals suggests that ecotourism is a multidisciplinary field that attracts interest from various research communities (Buckley, 2012). Additionally, 14.3% (82 journals) published two articles, 5.7% (33 journals) published three articles, 4.0% (23 journals) published four articles, and finally, 11.4% (65 journals) published five or more articles.

Table 2.2. Top 10 Journals with the Highest Number of Articles

Rank	Journal name	Publisher	SCImago Rank 2021	Number of articles	Number of citations
1	Journal of Ecotourism	Taylor and Francis	0.528	141	3,550
2	Journal of Sustainable Tourism	Taylor and Francis	2.476	68	3,489
3	Sustainability	Multidisciplinary Digital Publishing Institute	0.664	49	411
4	African Journal of Hospitality, Tourism and Leisure	Africa Journals	0.210	35	118
5	Journal of Environmental Protection and Ecology	Scientific Bulgarian Communication	0.182	34	64
6	Journal of Environmental Management and Tourism	ASERS Publishing House	0.238	33	82
7	GeoJournal of Tourism and Geosites	Editura Universitati di Oradea	0.332	31	168
8	Tourism Management	Elsevier	3.383	26	2,426
9	Environment, Development and Sustainability	Springer Nature	0.679	24	339
10	Tourism Recreation Research	Taylor and Francis	0.877	24	224

Leading Authors

The current study sample included a total of 3,978 different authors and co-authors involved in ecotourism research articles. Among them, only 30 authors have published five or more research articles. At the top of the list is Mauricio Carvache-Franco, with 16 articles and 83 citations. He is also co-author of Wilmer Carvache-Franco (14 articles and 52 citations) and Orly Carvache-Franco (eight articles and 30 citations). This group of authors focuses on analyzing the sociological aspects and relationships between motivation, satisfaction, and loyalty in ecotourism in natural conservation areas (Carvache-Franco et al., 2021; Carvache-Franco, et al., 2022). It's worth noting that these scholars have only been publishing ecotourism articles since 2018, which might explain the relatively low number of citations.Other authors in the top 10 have fairly similar numbers of articles and citations, ranging from 7 to 8 articles and from 30 to 156 citations (Table 2.3). Their research topics are quite diverse, spanning from the relationship between ecotourism and gender (Linh and Walter, 2014); ecotourism certification (Buckley, 2002); measuring sustainability for

ecotourism (Bhuiyan et al., 2016); and community perspectives on ecotourism (Stronza and Gordillo, 2008).

Table 2.3. Top 10 Authors with the Highest Number of Articles

Rank	Author	Affiliations	h-index	Number of articles	Number of citations
1	Carvache-Franco, M.	Universidad Espíritu Santo, Samborondón, Ecuador	13	16	83
2	Carvache-Franco, W.	Escuela Superior Politécnica del Litoral, Guayaquil, Ecuador	10	14	52
3	Walter, P.	University of British Columbia, Vancouver, Canada	18	10	351
4	Buckley, R.	Griffith University, Brisbane, Australia	45	9	245
5	Carvache-Franco, O.	Universidad Católica de Santiago de Guayaquil, Guayaquil, Ecuador	9	8	30
6	Stronza, A.	Texas AandM University, College Station, United States	22	7	670
7	Fennell, D.A.	Brock University, St. Catharines, Canada	33	7	156
8	Jaafar, M.	Universiti Sains Malaysia, Minden, Malaysia	26	7	89
9	Hamzah, J.	Universiti Kebangsaan Malaysia, Bangi, Malaysia	7	7	62
10	Er, A.C.	Universiti Kebangsaan Malaysia, Bangi, Malaysia	13	7	48

The most prolific authors are determined based on the number of publications, while the most influential authors are determined based on the number of citations (Hasana et al., 2022). However, when authors are ranked by the number of citations received, there's a significant difference in the order compared to their publication count. Table 2.4 lists the top 10 authors with the highest number of citations and their corresponding number of publications. At the top of the list is David Weaver with an impressive 727 citations and only 6 publications. Weaver's pioneering theoretical contributions have laid a solid foundation for subsequent ecotourism studies to build upon and expand (Weaver, 2005b, 2005a).

Table 2.4. Top 10 Authors with the Highest Number of Citations

Rank	Author	Affiliations	h-index	Number of citations	Number of articles
1	Weaver, D.B	QUT Business School, Brisbane, Australia	39	727	6
2	Stronza, A.	Texas AandM University, College Station, United States	22	670	7
3	Powell, R.B.	Clemson University, Clemson, United States	25	356	5
4	Walter, P.	The University of British Columbia, Vancouver, Canada	18	351	10
5	Donohoe, H.M.	Flagler College, St Augustine, United States	13	266	5
6	Buckley, R.	Griffith University, Brisbane, Australia	45	245	9
7	Snyman, S.	African Leadership University, Pamplemousses, Mauritius	10	192	5
8	Garrod, B.	School of Management, Swansea, United Kingdoms	26	183	5
9	Butcher, J.	Christ Church Business School, Canterbury, United Kingdoms	14	166	5
10	Fennell, D.A.	Brock University, St. Catharines, Canada	33	156	7

Leading Articles

Data on the number of citations received by the articles were extracted from the Scopus database. The articles collectively received 24,339 citations. Table 2.5 lists the 10 articles with the highest citation counts.

The article ‘Is community-based ecotourism a good use of biodiversity conservation funds?’ by Kiss A (2004) is the most cited article, with 451 citations. Kiss identified the conditions under which community-based ecotourism is more or less effective and sustainable compared to alternative methods for biodiversity conservation. He also emphasized the need for better data and rigorous analysis of both conservation and economic impacts.

The second most cited article is ‘Twenty years on: The state of contemporary ecotourism research’ by Weaver and Lawton (2007), which has garnered 407 citations. The article’s authors argued that research literature on ecotourism in the past two decades has given scant attention to crucial areas such as service quality control, industry structure, and ecotourism management practices, instead focusing on community-based ecotourism and the ecological impacts of wildlife viewing. Similarly, Krüger (2005) examined the distribution of ecotourism case studies across continents, habitats, and flagship species types based on 251 case studies from the literature. The study investigated the factors influencing whether authors perceive an ecotourism regime as ecologically sustainable. Consequently, over 50% of reported ecotourism research cases originated from Africa and Central America. Krüger also revealed significant differences between continents and associated habitats in terms of the

proportion of sustainable case studies: ecotourism is considered less sustainable in South America and Asia, as well as in island and mountainous environments.

The study by Chiu and colleagues (2014) focuses on examining the environmentally responsible behavior of tourists participating in ecotourism, with 282 citations. In addition, the study explores the impacts on key stakeholders in the eco-tourism. The findings suggest that perceived value, satisfaction, and activity involvement can promote environmentally responsible behavior among tourists. This, in turn, enhances tourists' awareness of the value of ecotourism activities.

Table 2.5. Top 10 Articles with the Highest Number of Citations

Rank	Title of articles	Citations	Authors	Journal
1	Is community-based ecotourism a good use of biodiversity conservation funds?	451	Kiss, 2004	Trends in Ecology and Evolution
2	Twenty years on: The state of contemporary ecotourism research	407	Weaver and Lawton, 2007	Tourism Management
3	The role of ecotourism in conservation: Panacea or Pandora's box?	328	Krüger, 2005	Biodiversity and Conservation
4	Environmentally responsible behavior in ecotourism: Antecedents and implications	282	Chiu et al., 2014	Tourism Management
5	Community views of ecotourism	280	Stronza and Gordillo, 2008	Annals of Tourism Research
6	Evaluating ecotourism sustainability from the integrated perspective of resource, community and tourism	262	Tsaur et al., 2006	Tourism Management
7	Community-based ecotourism: The significance of social capital	260	Jones, 2005	Annals of Tourism Research
8	Can ecotourism interpretation really lead to pro-conservation knowledge, attitudes and behaviour? Evidence from the Galapagos Islands	246	Powell and Ham, 2008	Journal of Sustainable Tourism
9	Exposure to ecotourism reduces survival and affects stress response in hoatzin chicks (Opisthocomus hoazin)	239	Müllner et al., 2004	Biological Conservation
10	Understanding the impact of ecotourism resort experiences on tourists' environmental attitudes and behavioural intentions	235	Lee and Moscardo, 2005	Journal of Sustainable Tourism

Out of the total 1,693 scientific articles, 16.7% have no citations. This may be due to a lack of academic interest in the research, or because the articles are very recently published (Jiménez-García et al., 2020).

Research Collaborations

The current study sample encompasses 123 countries participating in publishing, demonstrating that ecotourism is gaining significant attention from various nations worldwide. However, the level of interest and research outcomes vary considerably among countries. The top 10 countries account for 71.2% of the total publications (490 articles) and 97.1% of the total citations in the study sample (Table 2.6).

Overall, developed countries hold an edge in terms of the number of publications. The United States possesses a longstanding academic community that prioritizes environmental and sustainability issues. In addition, there are numerous specialized research centers and programs in the United States that focus on ecotourism and related topics. Consequently, it's unsurprising that this country tops the list with 243 articles and 8,643 citations. Similarly, the United Kingdom and Australia are two other nations with a long-standing academic tradition and substantial contributions to the advancement of ecotourism (Khanra et al., 2021; Singh et al., 2021).

Research and development of ecotourism can contribute to bolstering economic development, environmental protection, and promoting sustainable development in developing nations (Mbaiwa and Stronza, 2009). As a result, there's a growing trend of developing countries engaging in research on ecotourism. China, Indonesia, and Malaysia, following the United States, have exemplified this trend. These countries possess vast and diverse ecosystems and natural landscapes, making them appealing destinations for ecotourists. This has fueled significant interest in domestic research and development of ecotourism. The principal research areas on ecotourism in China, Indonesia, and Malaysia center on evaluating the potential for ecotourism development (Izwar et al., 2020; Shi et al., 2015); sustainable development and management of ecotourism in conservation areas (Li, 2004; Kaffashi et al., 2015; Marlina et al., 2020); ecotourists' experiences (Lian Chan and Baum, 2007; Zong et al., 2017), and the development of new ecotourism products (Jaafar and Maideen, 2012).

Co-authorship analysis can be used to identify the trends and nature of research collaborations in the study area and uncover the presence of research groups based on collaborations (González et al., 2016). The total link strength indicates the number of links between an item and other items and the overall strength of the links between an item and other items (van Eck and Waltman, 2010). This value reflects the importance of a keyword in the field, as higher values suggest that it has been linked to others more frequently.

Table 2.6. Top 10 Countries with the Highest Number of Articles

Rank	Country	Number of articles	Citations	Total link strength
1	United States	243	8,643	122
2	China	188	1,790	57
3	Indonesia	146	447	21
4	Malaysia	119	1,127	36
5	Australia	111	3,329	61
6	United Kingdom	97	3,303	79
7	Iran	83	874	33
8	South Africa	74	2,095	32
9	Canada	74	1,456	53
10	India	70	574	20
…				
	Vietnam	12	129	19
	Poland	9	33	6

From Figure 2.3, it is evident that the United States and the United Kingdom are the two countries with the highest level of research collaboration. Other countries, such as China, Malaysia, and India, also demonstrate high levels of collaborative engagement, indicating their growing influence in the field. In contrast, a number of countries, including Ukraine and Serbia, show minimal participation in international research collaboration.

Beyond the leading and marginal participants, there exists a significant group of countries positioned in the middle of the collaboration spectrum. These countries, such as Brazil, Iran, Turkey, and Australia, maintain a moderate level of collaboration, often acting as regional hubs or bridges between high- and low-engagement nations. Their roles are crucial in sustaining regional knowledge exchange and diversifying the global research network. Overall, while research collaboration on ecotourism is globally widespread, the extent and intensity of such collaboration vary considerably across countrie

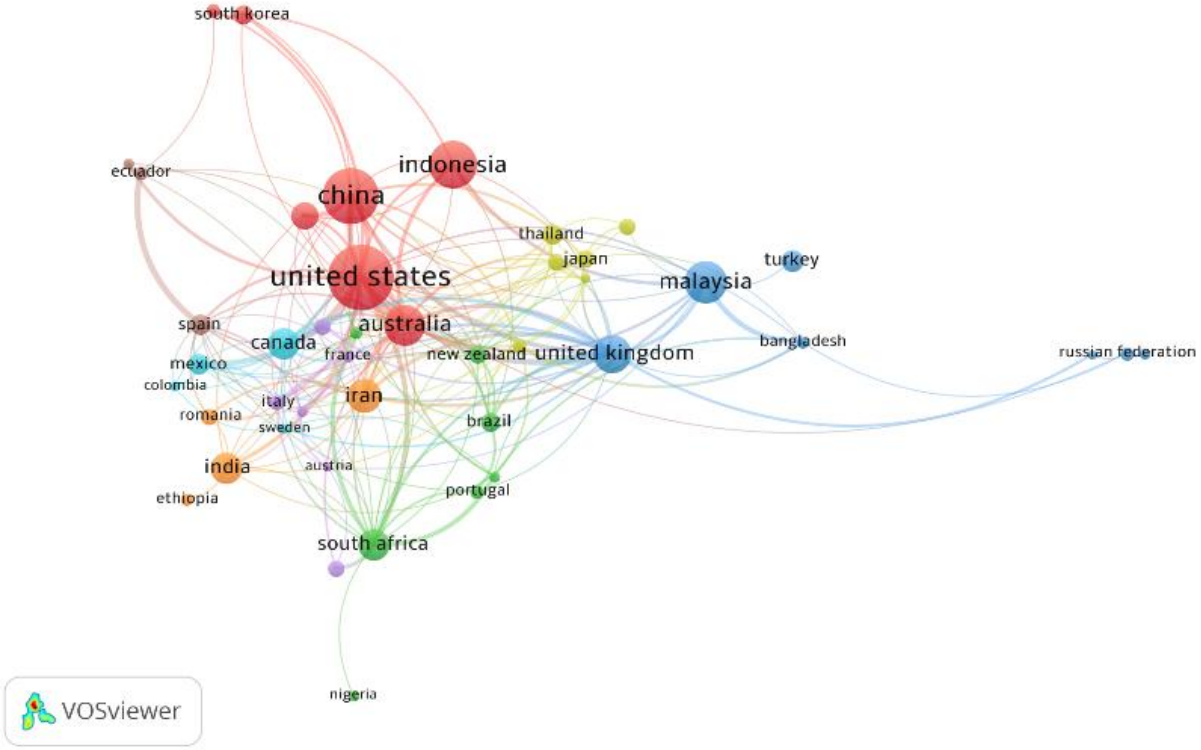

Figure 2.3. Co-Authorship Analysis Among Countries

Source: author's work based on VOSviewer

Key Research Themes and Trends

Keyword co-occurrence analysis can reveal keywords that appear in the same context and therefore identify frequently used keywords (Garrigos-Simon et al., 2018). In the sample of the study, there were 6,393 keywords in the selected articles. Table 2.7 lists the top 20 most frequent keywords and their corresponding total link strength.

Table 2.7. Top 20 Keywords in the Articles

Rank	Keyword	Occurrence (times)	Total link strength
1	ecotourism	1,273	3,282
2	tourism development	283	1,180
3	sustainable development	263	1,095
4	sustainability	208	734
5	tourism management	146	561
6	tourism	143	567
7	conservation	137	596
8	protected area	124	580
9	ecology	112	531
10	China	104	489
11	tourist destination	100	438
12	environmental protection	91	602
13	biodiversity	88	401
14	nature conservation	83	345
15	stakeholder	81	375
16	local participation	79	423
17	sustainable tourism	76	236
18	conservation management	68	338
19	perception	65	267
20	national park	63	290

Source: author's work based on VOSviewer

The network visualization map of keyword occurrences, generated using the VOSviewer software, is presented in Figure 2.4. The size of the nodes and the words they represent correspond to the weight of the nodes (keywords), which is the frequency of their appearance. The network connections represent the co-occurrence of keywords that appear together more frequently in the analyzed articles; a line between two keywords indicates their co-occurrence. The distance between two nodes reflects the strength of the relationship between them, meaning that the shorter the distance, the stronger the relationship. The thickness of the lines indicates the frequency of their co-occurrence. The color of the nodes represents different clusters or groups of keywords (van Eck and Waltman, 2010, 2017). As shown in Figure 1.4, 'ecotourism' is the largest node at the center (1,273 occurrences), and 'sustainable development' is the second largest node (263 occurrences). These two keywords have the highest total link strength, indicating that ecotourism and sustainable development are closely related and often appear together in theoretical research.

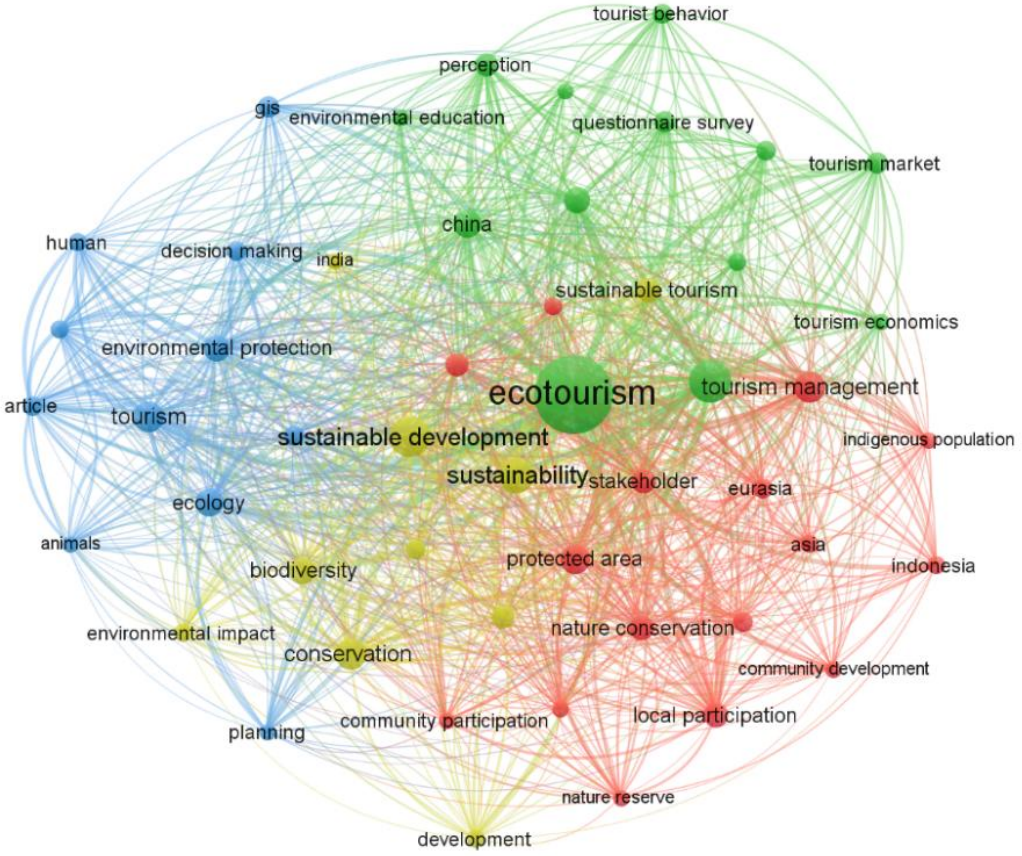

Figure 2.4. Network Visualization of the Simultaneous Occurrence of Keywords

Source: author's work based on VOSviewer

Recognizing the most common keywords can help identify the most frequently occurring topics in this field (Garrigos-Simon et al., 2018). To determine the main research topics, 50 keywords were retrieved with a minimum occurrence limit of 30 times (Table 2.8). These keywords were subsequently categorized into four clusters, each represented by a distinct color. Based on this clustering, four main research topics were identified, reflecting the core thematic directions within the ecotourism research landscape as revealed by the author's own analysis; including:

Topic 1. Engaging Local Communities and Stakeholders in Ecotourism Management and Development in the Protected Areas

This cluster comprises the most extensive set of keywords, encompassing 16 terms. The presence of phrases like 'community development', 'community participation', and 'community-based ecotourism' highlights the positive impacts of ecotourism activities documented in various studies, including fostering local economic growth, generating employment opportunities, and augmenting income for the local community (Digun-Aweto et al., 2019; Chan et al., 2021; Dasan et al., 2022; Kunjuraman et al., 2022; Rahman et al.,

2022). Moreover, effective participation of stakeholders plays a significant role in the management and planning of ecotourism (Bansal and Kumar, 2013; Min, 2016; Diamantis, 2018; Ip-Soo-Ching et al., 2019).

The protected areas serve a crucial role in the existence and advancement of ecotourism. Ecotourism within protected areas provides a conducive environment for responsible travel to natural sites, fostering environmental preservation, generating economic benefits for local communities, and offering interpretation and education to visitors (Marcu, et al., 2022). The adverse effects of mass tourism on the protected areas have motivated numerous scholars to investigate and publish studies on ecotourism in conservation zones. Ecotourism is widely recognized as a sustainable lifeline for conservation areas, contributing to the preservation of local biodiversity, community development, and environmental education (Lindsey et al., 2007; Demir et al., 2016; Masud et al., 2017).

Topic 2. Understanding Ecotourist Perceptions, Attitudes, and Behaviors

The sustainable development of ecotourism hinges on the actions of tourists. As consumers of tourism services, tourists significantly influence the trajectory of ecotourism development (Ren et al., 2021). Questionnaire surveys serve as a primary tool to gather insights into tourists' ecotourism awareness, encompassing their attitudes towards nature, motivations for engaging in ecotourism activities, and satisfaction with tourism services (Samdin et al., 2021; Akbar et al., 2022; Angessa et al., 2022; Stanciu et al., 2022; Upadhaya et al., 2022). This information empowers ecotourism operators and marketers to refine strategies to entice and retain tourists, developing ecotourism products and services that align with tourists' preferences while adhering to sustainability principles (Lin and Zhao, 2021; de Souza et al., 2022).

Topic 3. Leveraging Technology and Environmental Management for Sustainable Ecotourism Planning and Management

The Geographic Information System (GIS) technology is gaining widespread adoption and accessibility, empowering researchers to analyze and visualize spatial data associated with ecotourism sites. GIS applications extend to evaluating the potential and risks of ecotourism activities (Nino et al., 2017; Pham et al., 2021; Acharya et al., 2022; Amin et al., 2022; Tang et al., 2022); monitoring and enhancing decision-making in ecotourism management (Mohd and Ujang, 2016; Mukherjee, 2019; Huang, 2022); and planning for the development of ecotourism (Bunruamkaew and Murayama, 2011; Mulyadi and Nursyahputra, 2020; Fan and Xu, 2021).

The presence of keywords such as ‘animals’ and ‘ecology’ highlights the increasing attention to environmental components within ecotourism, particularly the ecological systems and wildlife that are often directly impacted by tourism activities. While these terms do not explicitly reference management strategies, their recurrence suggests that effective ecotourism planning must incorporate ecological considerations – especially wildlife conservation – into broader environmental management frameworks. This aligns with the need to apply technological tools and ecological monitoring systems to minimize negative impacts on fauna and ensure sustainable site management (Ghosh and Ghosh, 2019; Ibrahim et al., 2019; Fan and Xu, 2021; Tavakoli et al., 2022).

Topic 4. Protecting Biodiversity and Achieving Sustainable Development in Ecotourism

Ecotourism research places a strong emphasis on fostering sustainable tourism practices that align with environmental conservation and community well-being. Keywords like ‘sustainable development’, ‘sustainability’, and ‘sustainable tourism’ reflect the growing interest in developing tourism that meets the needs of tourists without compromising the environment or local communities (Stanciu et al., 2022; Kunjuraman, 2022). The prominence of phrases like ‘conservation’, ‘conservation management’, and ‘natural resource’ in the keywords indicates the focus on efficient natural resource management that supports biodiversity conservation. This involves understanding how ecotourism affects regional ecosystems and identifying strategies to minimize negative impacts while maximizing tourism revenue (Angessa et al., 2022; Stanciu et al., 2022; Upadhaya et al., 2022). Researchers strive to ensure that ecotourism remains a viable and sustainable economic activity that benefits local communities while safeguarding natural resources for future generations.

Table 2.8. Clusters and Corresponding Keywords

Topics	Color	Keywords
1	red	tourism management, Asia, community development, community participation, community-based ecotourism, developing world, eurasia, indigenous population, indonesia, local participation, Malaysia, national park, nature consevation, nature reserve, protected area, stakeholder.
2	green	ecotourism, China, economic development, environmental education, perception, questionnare survey, tourism development, tourism economics, tourism market, tourist attraction, tourist behavior, tourist destination, willingness to pay.
3	blue	tourism, animals, article, conservation of natural, decision making, ecology, environmental management, GIS, human, planning.
4	yellow	sustainable development, biodiversity, conservation, consevation management, development, environmental impact, india, natural resource, sustainability, sustainable tourism.

Source: author’s work based on VOSviewer

The Growing Trend

The VOSviewer visual map of keyword co-occurrences highlights the frequency of keywords appearing together (Figure 2.5). The analysis reveals that the period from 2012 to 2018 witnessed the highest concentration of co-occurring keywords. Purple nodes represent frequently used keywords from the early research phase, while green and light yellow nodes represent keywords that have become more prevalent in recent publications. Notably, the keywords 'ecotourism', 'sustainable tourism', 'sustainability', 'sustainable development', and 'biodiversity' occupy a central position (green) due to their consistent use throughout the studied period.

The surge in keywords like 'GIS', 'human', 'ecology', 'perception', 'questionnaire survey', 'climate change', and 'planning' in recent years underscores the growing trend towards data-driven decision-making, stakeholder engagement, and climate change adaptation in ecotourism planning and management. Climate change is a global phenomenon that affects the environment and natural resources that eco-tourism destinations depend on (Day and Noakes, 2021). For example, changes in temperature, rainfall, and sea level can alter ecosystems, wildlife behavior, and biodiversity, which can affect the attractiveness and survival of eco-tourism destinations (Mkiramweni et al., 2016; Jamaliah and Powell, 2019; Salpage et al., 2020). As a result, researchers are devoting increasing attention to understanding climate change impacts on ecotourism destinations and developing strategies to mitigate these effects. This includes promoting sustainable tourism practices that reduce carbon emissions, embracing renewable energy, and adapting to changes in natural systems and resources (Ashok et al., 2022; Sitanggang et al., 2022).

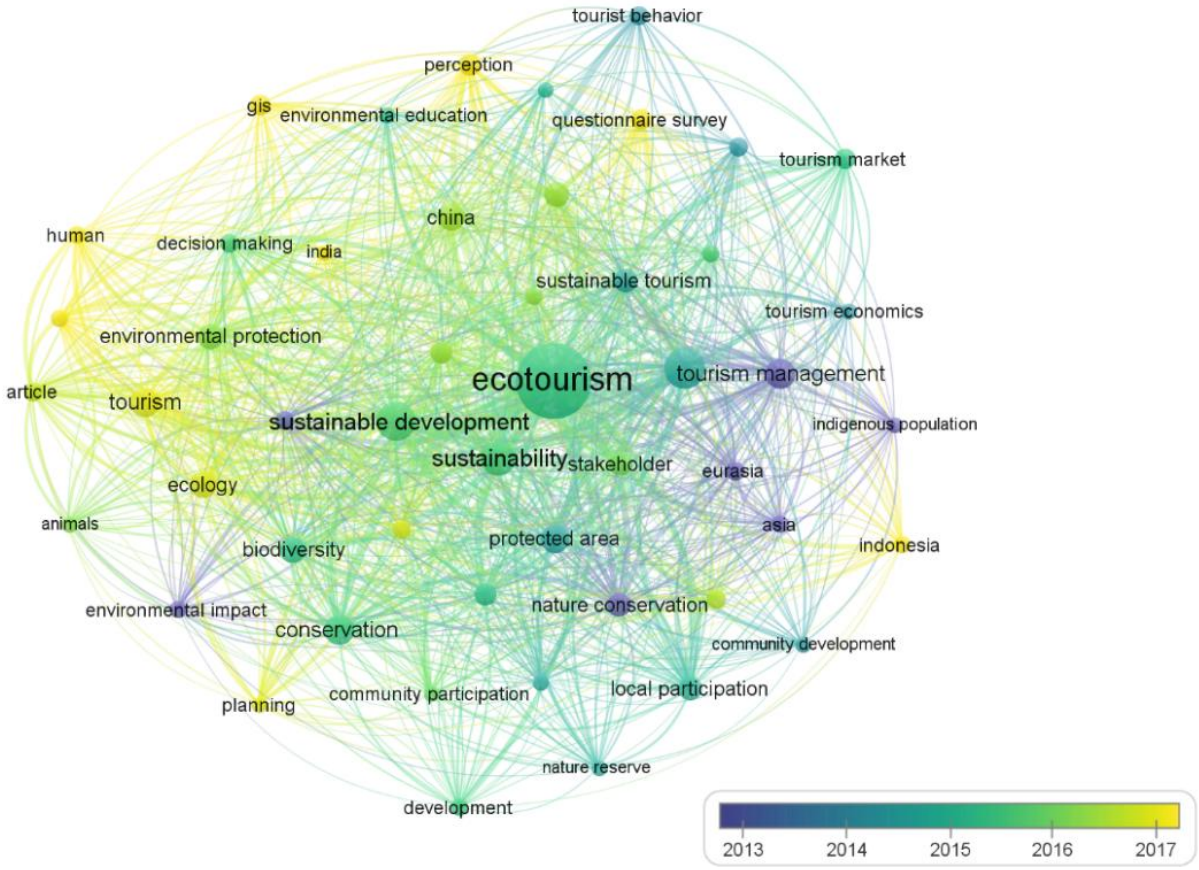

Figure 2.5. Keyword Overlay Visualization in Ecotourism Articles

Source: author's work based on VOSviewer

Furthermore, the visualization of the geographic coverage of research on ecotourism reveals trends related to the use of geographic location. Countries like the United States, South Africa, the United Kingdoms, Canada, Australia, New Zealand, Peru, and Costa Rica were the focus of early research. In recent years, keywords such as India, Indonesia, Malaysia, China, Nepal, Ecuador, and Vietnam have become increasingly prevalent, indicating a growing trend in research on ecotourism projects in these countries.

The distribution of ecotourism studies across continents and regions underscores two significant points. First, the substantial number of studies conducted in Africa reflects ecotourism's reliance on easily observable wildlife species. It is therefore unsurprising that ecotourism originated on the African plains (Budowski 1976). The prime ecotourism location in Central America is attributed to its proximity to North America. Costa Rica stands out as the leading country for ecotourism research, owing to its diverse and captivating landscapes, abundant wildlife, and political stability, all of which are crucial aspects of ecotourism success (Krüger, 2005).

Summary of Chapter 2

Chapter 2 provides a comprehensive overview of key theoretical foundations in the study of ecotourism. This chapter systematizes three main aspects: the concept of sustainable development, the concept of sustainable tourism, and the concept of ecotourism, through content analysis and bibliometric analysis.

Specifically, the concept of sustainable development emerges as a response to growing awareness of environmental degradation and the need for a balanced approach between economic growth, social equity, and environmental protection. Originating from the Brundtland report (1987), sustainable development becomes institutionalized through global frameworks such as the United Nations' Sustainable Development Goals (SDGs). In Vietnam, sustainable development is contextualized to align with national priorities, focusing on poverty reduction, environmental conservation, and sustainable economic growth. The integration of sustainable development into policies reflects Vietnam's commitment to global sustainability agendas while addressing local challenges.

In turn, sustainable tourism, as an application of sustainable development principles to the tourism sector, aims to minimize the negative impacts of tourism activities while maximizing economic, social, and environmental benefits. Globally, sustainable tourism is recognized as a crucial strategy to address challenges posed by mass tourism, such as environmental degradation and cultural commodification. In Vietnam, sustainable tourism development is guided by strategic policies and programs that emphasize cultural heritage promotion, natural resource conservation, and community involvement. However, challenges remain in achieving an optimal balance between tourism growth and sustainability goals, particularly in areas with high tourism potential but limited infrastructure.

In the aforementioned context, ecotourism can be understood a specialized branch of sustainable tourism, emphasizing the conservation of natural and cultural heritage, environmental education, and community participation. The content analysis of the concpets of ecotourism conducted in this chapter clarifies key themes and aspects related to this form of tourism, including its dual focus on ecological preservation and socio-economic benefits. Bibliometric analysis further identifies the growth of ecotourism research, highlighting trends, influential works, and key geographic areas. Globally, ecotourism is regarded as a strategy to balance conservation and development, particularly in regions rich in biodiversity. In Vietnam, ecotourism gains attention in recent decades, with notable initiatives in protected

areas and regions inhabited by ethnic minority communities. However, gaps remain in policy implementation, promotion, and stakeholder collaboration.

The theoretical foundations presented in Chapter 2 provide a robust reference framework for understanding the complexity of ecotourism as a multidimensional concept. These conclusions not only lay the groundwork for the subsequent chapters, which explore practical applications and the potential for tourism development in Vietnam and the BTT region, but also serve as a critical foundation for the entire research. The analysis of theoretical foundations – encompassing sustainable development, sustainable tourism, and ecotourism – has enabled the formulation of the research problem, research questions, and corresponding hypotheses (as presented in Chapter 1). As such, this chapter plays a pivotal role in framing the study's overall direction, ensuring conceptual coherence between theory and empirical investigation.

Chapter 3. Tourism in Vietnam

Vietnam's tourism is considered a key economic sector due to its rich and diverse tourism potential. Vietnam is continuously in the group of countries with the fastest tourist growth rates in the world. In 2019, the tourism achieved the remarkable feat of welcoming 18 million international visitors for the first time and received numerous prestigious awards. However, Vietnam's tourism still faces certain limitations. To address this issue, Chapter 3 undertakes a diagnosis of the current state of tourism development in Vietnam.

This chapter is structured into three main subchapters. The first outlines the history of the formation and development of Vietnam's tourism, from the feudal period to the present. The second analyzes internal and external factors that may influence tourism development in Vietnam. The third highlights the current state of tourism in Vietnam, based on collected and analyzed data regarding tourist arrivals, revenue, infrastructure, and human resources.

3.1. Historical Approach

This subchapter delves into the evolution of Vietnam's tourism across various historical eras. Activities related to what is now called tourism in Vietnam have a long and rich history, dating back to ancient times and encompassing periods of feudal rule and French colonial influence. However, it was only in the late 20th century, following the conclusion of major wars and conflicts, that tourism experienced a period of rapid and transformative development (Bui and Phi, 2022). Based on Vietnam's unique socio-economic, historical, and political context, the development of the tourism can be divided into six clearly defined periods.

Period 938–1858: The Monarchical Period

After regaining autonomy from China, Feudal Vietnam established a monarchy (938) (Long, 2003). During this historical period, certain forms of travel existed, including political travel, religious travel, and commercial travel. These activities, however, had little in common with modern tourism. Political travel was the most prevalent form during this era. Emperors and officials frequently engaged in domestic travel to fulfill tasks assigned by the dynasty, such as royal processions throughout the country or diplomatic visits abroad. Feudal dynasties in Vietnam regularly dispatched envoys to China for ceremonial offerings and tribute, and Chinese envoys also frequently visited Vietnam to attend coronation ceremonies or make requests to the Vietnamese court (Nguyen, 2015). Religious travel was also a significant form of mobility during this period. Chinese and Indian clergy came to Vietnam, while Vietnamese monks traveled across the country to propagate religions. Notably, King Tran Nhan Tong

(1278–1293) undertook a pilgrimage and established a new branch of Buddhism – Truc Lam Yen Tu (Bui and Bui, 2022). Commercial tourism also experienced robust development. Merchants from China, India, Champa, Cambodia, Java, Malaysia, and Western countries such as England, France, and the Netherlands engaged in maritime trade from the 17th century onwards. Several seaports and river ports emerged as crucial trade hubs, including Van Don (Quang Ninh), Pho Hien (Hung Yen), Thang Long (Hanoi), Hoi An (Quang Nam), and Gia Dinh (Ho Chi Minh City) (Porananond and King, 2016).

In summary, various parts of human mobility during the feudal period in Vietnam was primarily undertaken by emperors, aristocrats, or officials for duties, diplomatic missions, as well as by merchants engaged in international and domestic trade. The travels of Buddhist missionaries were also recorded.

Period 1858–1953: Tourism in Colonial Vietnam

The colonial period in Vietnam under French rule began in 1858, with all three regions – Cochinchina, Annam, and Tonkin – conquered, forming three countries under different political systems (Laderman, 2009). The French strengthened their influence in the region by establishing the Union of Indochina in 1887, gradually merging Vietnam, Cambodia, Laos, and Kouang-Tcheou-Wan in China (Demay, 2015). Travel activities with features resembling contemporary tourism played a certain role in colonial policies through four key aspects: 1) shaping national identity and image – travel helped promote a positive and interesting image of the colony, attracting international visitors; 2) establishing territorial control – travel activities assisted the French in exploring and grasping control of the colonial territory, building transportation infrastructure and accommodations; 3) promoting economic development – travel-related activities provided a source of foreign currency for the colony, created employment, and stimulated economic growth; and 4) contributing to social construction – travel-related activities enhanced cultural exchanges and community cohesion in the colony (DeWald, 2007; Demay, 2015).

From 1898 to 1945, tourism in Indochina experienced development, divided into three periods; including:

1) From 1898 to 1920, tourism in Indochina remained limited, primarily attracting French and European tourists. The Colonial Administration started building transportation infrastructure for tourism, including railways, waterways, and roads. The first railway line, connecting Saigon to My Tho, was built in 1885. By facilitating passenger travel, railway lines also brought potential customers to future tourist centers (DeWald, 2007).

2) In the 1920s–1930s, tourism in Indochina saw robust development, attracting an increasing number of international tourists. The colonial government focused on developing resorts, hotels, and appealing tourist products. In 1928, the Air Travel Office was established by the Indochinese Government, responsible for improving aviation infrastructure for tourism. During this period, Indochina was equipped with modern transportation infrastructure, connecting all colonies and linking the colony to the outside world. Tourism benefited from this extensive infrastructure, and thousands of workers migrated between North and South using this transportation network (Demay, 2015).
3) In the 1930s–1953s, tourism in Indochina continued to flourish, especially domestic tourism. The colonial government intensified tourism promotion, trying to attract Vietnamese participants. However, similar to the early periods, data collection on tourist numbers and revenue during the colonial era was also limited. As a result, there are no official publications directly addressing this issue.

Period 1954–1975: Tourism Developed for Political Purposes

Following the failure of the French government in North Vietnam, the Vietnam War (1959–1975), also known as the Second Indochina War, erupted, lasting for 20 years with conflicts between North and South Vietnam (Laderman, 2009). Consequently, the development of Vietnam's tourism during this period was heavily influenced by political factors.

Tourism in South Vietnam

The Geneva Accords of 1954 temporarily divided Vietnam into two separate entities – North Vietnam (under communist control) and South Vietnam (under the control of the Republic of Vietnam) (Asselin, 2007). This political division resulted in distinct administrative systems and separate governments in the North and the South. The Republic of Vietnam government implemented various policies to encourage tourism development, including establishing tourism management agencies, enacting tourism regulations, and investing in tourism infrastructure. The National Tourism Office transitioned from the previous colonial government to the Republic of Vietnam. The intensified promotion and marketing of tourism to showcase the tourism potential of South Vietnam globally received support from the United States government and its allies (Laderman, 2009). In 1957, South Vietnam recorded 13,250 international tourist arrivals, nearly doubling to 24,265 in 1960 and peaking at 72,000 in 1970. The majority of tourists primarily came from the United States (Laderman, 2009). Destinations in the South, such as Da Lat, Nha Trang, and Hue, were accessible from Saigon

by air, and road networks were established. Pan American Airways was the only United States airline bringing tourists to Vietnam. However, the Vietnam War significantly impacted the development of the tourism in South Vietnam (Laderman, 2009). The escalation of the war in the late 1960s, the withdrawal of United States troops in 1973, and the collapse of the Republic of Vietnam's military in 1975 marked the end of the brief development of the tourism in South Vietnam.

Tourism in North Vietnam

The history of tourism development in North Vietnam officially began on July 9, 1960, when Prime Minister Pham Van Dong signed Decree 26/CP, establishing the Vietnam Tourism Company. The Vietnam Tourist Company was established in 1960 in the North and initially operated under the Ministry of Foreign Affairs. Later, it came under the management of the Ministry of Public Security (London, 2020). The North Vietnamese tourism was established at a time when the workforce lacked experience in tourism management and business, and the tourism technical infrastructure comprised only nine hotels with a total of 152 rooms scattered across provinces, the cities of Hanoi, Hai Phong, and Quang Ninh. During this period, tourism was developed primarily with the aim of achieving political goals (Truong, 2014). The total number of international arrivals to North Vietnam was highly restricted. In 1960, Vietnam received only 6,130 international visitors, and by 1975, the number had only increased to 36,910 (Figure 3.1) (Tran, 2005).

Most of the international visitors to Vietnam were diplomatic delegations and experts from countries within the socialist bloc, including the former Soviet Union, Bulgaria, Hungary, Romania, Czechoslovakia, Poland, Cuba, and China (Lam and Mok, 1997). Domestic tourism, on the other hand, primarily served the leisure and recuperation needs of senior officials and trade union members who enjoyed welfare benefits, a distinct characteristic of the planned economy regime. During this period, several travel companies, supply companies, and transport enterprises were established to cater to foreign diplomatic delegations, experts assisting Vietnam, and domestic tourists (Truong, 2014).

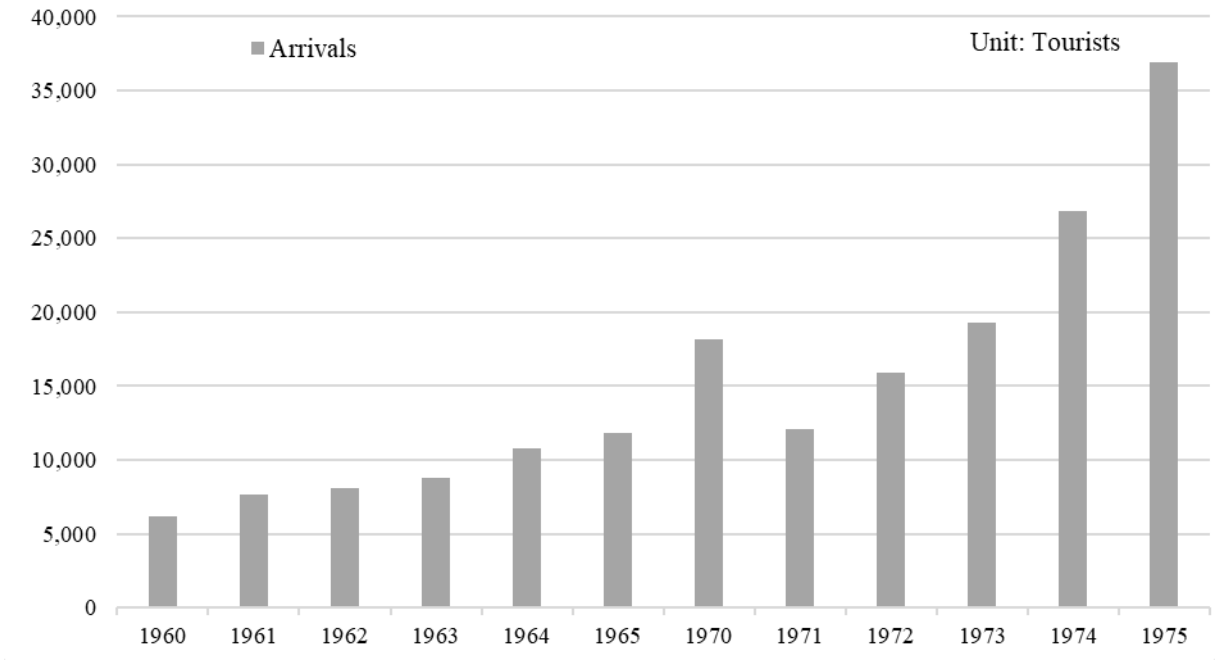

Figure 3.1. International Tourist Arrivals in Northern Vietnam (1960-1975)

Source: author's work based on Ministry of Home Affairs, 1979

Period 1975–1990: Tourism Recognized as an Economic Sector

Since the reunification of Vietnam in 1975, the country faced both challenges and opportunities in its path to recovery and development following the extensive devastation caused by the Vietnam War. The end of the war also ushered in a period of isolation for Vietnam, as economic sanctions imposed by the United States and its allies hindered the movement of people and resources both domestically and internationally (Bui and Bui, 2022). Tourism development remained challenging due to the extensive damage sustained during the war (Lam and Mok, 1997). Vietnam prioritized efforts to heal the wounds of war, rebuild its economy, and break free from the American embargo (Cooper, 2000).

From 1976 to 1986, the tourism operated under a centrally controlled, state-run model, which restricted its effectiveness and efficiency. However, business activities in the tourism sector developed in scale and variety. Tourist destinations gradually expanded to include cities such as Ho Chi Minh City, Hue, Da Nang, Vung Tau, and Can Tho (VNAT, 2005). Despite these efforts, due to policy barriers, inadequate infrastructure, and economic underdevelopment, international tourism growth in Vietnam was slow. Over a ten-year period, the number of international tourists increased by only 1.4 times, from 36,910 in 1975 to 50,830 in 1985, primarily consisting of individuals from the former Soviet Union (Cooper, 2000). Domestic tourism, on the other hand, primarily catered to government officials and trade union members who enjoyed vacation benefits. Tourism was primarily developed to

promote patriotism, enhance mutual understanding between the North and the South, and portray Vietnam as a peaceful nation (VNAT, 2005). However, post-war economic struggles hindered the growth of domestic tourism. As a result, there are no official statistical Figs on domestic tourism during this period (Tran, 2005). In 1978, the Vietnam National Administration of Tourism (VNAT) was established. Its primary roles included state management of tourism activities and the direction of the tourism business system nationwide. Simultaneously, the Vietnam Tourism Corporation was dissolved.

In 1986, Vietnam embarked on the Renovation Policy, marking a pivotal turning point for the country. The economic model shifted from central planning to a market-oriented approach with a socialist orientation. This innovative model, developed by the Communist Party of Vietnam, aimed to establish a fully operational, coordinated economy that adhered to the laws of the market while upholding a socialist orientation appropriate to each stage of the country's development. It envisioned a modern market economy integrated into the international community, managed by the Communist Party of Vietnam under the rule of law, with the ultimate goal of achieving 'prosperity for the people, strength for the nation, democracy, justice, and civilization' (The Central Committee of the Party Executive Board, 2016). The gradual opening up of the economy created favorable conditions for tourism businesses to operate more dynamically and efficiently. Following the economic reforms of 1986, tourism gained recognition as a significant economic sector and began to attract a growing number of foreign tourists (Tran, 2005). In 1990, Vietnam welcomed over 250,000 international tourists (4.92 times the number in 1985) and more than 1 million domestic tourists (four times the number in 1985) (Table 3.1).

Table 3.1. Tourist Arrivals in Vietnam (1986-1991)

Year	Foreign tourists	Domestic tourists
1986	54,353	280,000
1987	73,283	400,000
1988	110,390	480,000
1989	187,573	540,000
1990	250,000	1,000,000

Source: author's work based on Ministry of Home Affairs, 1992

Furthermore, the tourism gained more autonomy in business operations after 1986, functionning under a competitive market mechanism (Khuong, 2014). This led to the training and development of a skilled workforce to meet the increasing demands of both domestic and international tourists. In 1990, the Vietnam Tourism Year campaign was launched to enhance the country's global image (Hobson, et al., 1994). However, the dissolution of the Eastern

Bloc in the late 1980s and early 1990s resulted in the loss of these markets, leaving Vietnam with a deficit in foreign currency for post-war reconstruction. As a result, the country sought alternative markets in Western Europe and North America to generate revenue from tourism exports. Many tourist destinations and facilities, vestiges of the colonial and imperial era (particularly in South Vietnam), underwent renovation and upgrading to accommodate foreign visitors. These enhancements were concentrated in major cities like Hanoi, Hue, Da Nang, Ho Chi Minh City, Da Lat, Vung Tau, and Can Tho (Truong, 2013).

Period 1990–2006: Tourism as an Important Tool of Economic Growth and Poverty Alleviation

The Renewal Policy led to the gradual removal of barriers to private investment and the encouragement of foreign investment through the enactment of the Law on Private Enterprise and the Law on Company (1990), the Law on Domestic Investment Promotion (1994), and amendments to the Law on Foreign Investment (1992, 1996). Moreover, the lifting of the United States trade embargo in 1994 provided an opportune moment for tourism to develop as a true economic sector, distinct from its earlier role of primarily serving external demands. The Renewal process also marked a significant shift in the Vietnamese government's perception of tourism, moving away from viewing it as a political tool and embracing its economic benefits. Vietnamese government declared tourism as a strategic component of economic and social development, industrialization, and modernization of the country (Truong and Le, 2016). This shift in focus was further solidified by the 9th Party Congress in 2001, which set the goal of transforming tourism into a leading industry.

The political and economic reforms of the Renovation Policy created a more welcoming environment for tourism, increasing Vietnam's visibility and attractiveness in the international tourism market. This led to a surge in tourism arrivals, with the annual growth rate consistently exceeding 30% from 1992 to 2006 (Figure 3.2). However, the development of tourism in Vietnam during this period also revealed numerous issues, primarily the failure to establish clear actions aligned with its strategic approaches (Cooper, 2000); a lack of basic and accurate statistical information about tourists, insufficient investment capital, high inflation rates, an incomplete legal system and business policies to manage the business community, and inadequate public infrastructure (Lam and Mok, 1997). In addition, the 1997 Asian (Association of South East Asian Nations) financial crisis caused a significant drop in international tourism arrivals. Despite the impact of the Asian financial crisis, domestic tourism remained resilient, experiencing steady growth throughout the period from 1991 to

2006. This growth reflected the rising affluence and consumer spending following the war, indicating the potential for domestic tourism to become a significant driver of the industry in the future.

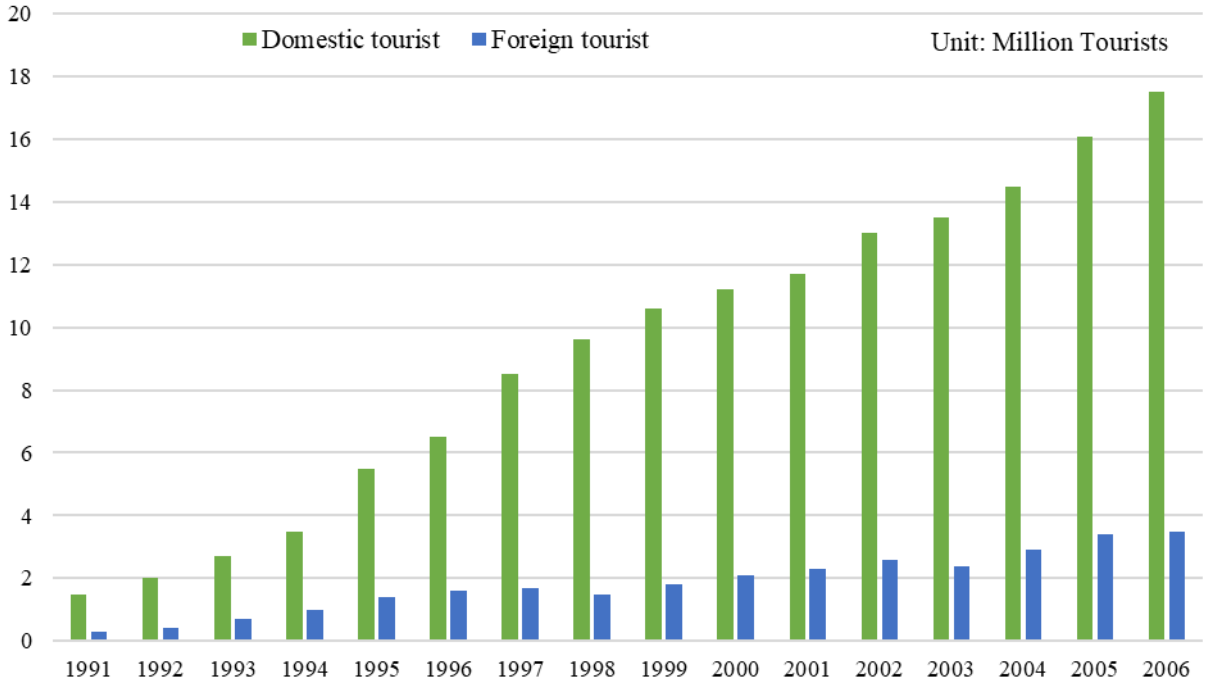

Figure 3.2. Tourist Arrivals in Vietnam (1991-2006)

Source: author's work based on VNAT, 2023a, 2023b

Beginning in 1992, there was tremendous growth in the accommodation sector, driven by the Vietnamese government's decision to relinquish its monopoly and open the market to foreign investment (Suntikul et al., 2008). By 2006, Vietnam boasted 7,039 accommodation establishments with 160,500 rooms (VNAT, 2024). Additionally, tourism directly employed 234,000 people in Vietnam, while indirectly supporting the livelihoods of 510,000 individuals (Suntikul et al., 2008). In tandem with the reestablishment of the Vietnam National Administration of Tourism (VNAT) in 1992, the state's organizational structure for tourism management at the local level was rapidly enhanced. Fourteen localities established Departments of Tourism. Alongside various state-owned enterprises, a diverse range of businesses became involved in providing tourism services, including collective, private, family-owned, and foreign direct investment enterprises. By 2006, tourism had been integrated as a critical component of the National Socio-Economic Development Plan for the 2006–2010 period, which was endorsed at the 10th Party Congress (Bui et al., 2022).

Period 2007 to present: Tourism Asserts Its Role as a Spearhead Economic Industry

In 2007, the Vietnam National Administration of Tourism was integrated into the Vietnam Ministry of Culture, Sports, and Tourism. During this period, the tourism faced challenges posed by regional and global economic downturns, political conflicts, and issues related to disputes in the East Sea (South China Sea). Despite these challenges, Vietnam's tourism sector actively pursued development, formulating a comprehensive strategy and planning for the tourism's growth through 2020, with a vision towards 2030. Vietnam implemented the National Tourism Action Plan, the National Tourism Promotion Program, and provided strategic advice to enhance the country's competitive capacity and revitalize tourism development in this new phase. A significant milestone for Vietnam's tourism was its official accession to the World Trade Organization (WTO) in 2007. This event opened up new avenues for international collaboration and further integration into the global tourism market. The current status of Vietnam tourism development during this period is presented in detail in Subchapter 3.3.

3.2. Contemporary Factors Influencing Tourism Development

This subchapter focuses on analyzing the critical contemporary factors influencing the development of tourism in Vietnam. Specifically, it will examine both internal and external factors, which include natural, socio-economic and political elements influencing tourism development.

3.2.1. Internal Factors

The internal factors play a crucial role in the development of Vietnam's tourism, influencing both its capacity to attract tourists and the sustainability of the sector. This section focuses on analyzing the factors related to natural conditions, culture, environmental management policies, political stability, and social safety.

Natural Resources

Crouch and Ritchie (1999) provide a definition of natural resources, defining them as the essence of the core resources within the environment, encompassing various flora and fauna. Tourist destinations represent a composite of tourism products (e.g., environmental resources, infrastructure, and services) designed to attract visitors (Dwyer and Kim, 2003). Therefore, preserving natural resources is essential to maintain the quality of tourism products (Reimer and Walter, 2013). With its diverse topography and climatic conditions, Vietnam is endowed with a wealth of flora and fauna, boasting an impressive rate of endemism, with 10% of its

species being unique to the region. Additionally, 11% of the species found in Vietnam are endemic to the country. As a result of this biodiversity, Vietnam holds the prestigious rank of the 16th most biodiverse nation globally, and it is home to 110 Key Biodiversity Areas (Mittermeier et al., 2011).

Vietnam has a coastline of 3,260 kilometers spread out over 3,000 islands, including the Paracel and Spratly archipelagos. Vietnam's seagrass diversity stands out, ranking second only to the Philippines (Trupp and Dolezal, 2020). Seagrass beds proliferate from the northern to southern regions and support a rich array of life, housing 125 benthic species and 158 seaweed species (Nguyen, 2023). Moreover, Vietnam's coral reef ecosystems have already captured the attention of ecotourists, with resorts established on various islands. These ecosystems boast a remarkable species composition, featuring approximately 95 species from 35 genera in the northern coastal areas and 255 species from 69 genera in the southern coastal regions. This diversity encompasses 180 phytoplankton, 97 zooplankton, 70 seaweed, 78 polychaeta, 208 mollusk, 76 crustacean, and 157 fish species (T. L. Pham et al., 2000). Vietnam also has a total of 167 protected areas across the country, encompassing a diverse range of natural environments (Figure 3.3). This includes 33 National Parks (NP), with 6 of them managed by the Vietnam Administration of Forestry (VNFT) and 20 under a Provincial People's Committees, and seven under the Vietnam Ministry of Agriculture and Rural Development (Table 3.2). Additionally, there are 57 nature reserves, 14 species and habitat conservation areas, 54 landscaped protected areas, and nine experimental and scientific research areas (VNFT, 2020). A notable observation is that the majority of these protected areas, around three-quarters of them, are situated in mountainous regions or incorporate mountain peaks into their territories.

Table 3.2. Protected Areas in Vietnam

Name	**Year established**	**Area** (ha)	**Provinces**
Hoang Lien	2002	29,845	Lao Cai, Lai Chau
Ba Be	1992	7,610	Bac Kan
Bai Tu Long	2001	15,783	Quang Ninh
Xuan Son	2002	15,048	Phu Tho
Tam Đao	1996	36,883	Vinh Phuc, Thai Nguyen, Tuyen Quang
Du Gia	2015	15,006	Ha Giang
Phia Oac – Phia Den	2018	10,593	Cao Bang
Ba Vi	1991	10,815	Ha Noi, Hoa Binh
Cat Ba	1986	15,200	Hai Phong
Cuc Phương	1962	22,200	Ninh Binh, Thanh Hoa, Hoa Binh
Xuan Thuy	2003	7,100	Nam Đinh
Ben En	1992	14,735	Thanh Hoa
Pu Mat	2001	91,113	Nghe An
Vu Quang	2002	55,029	Ha Tinh
Phong Nha-Ke Bang	2001	85,754	Quang Binh
Bach Ma	1991	22,030	Hue, Quang Nam
Phuoc Binh	2006	19,814	Ninh Thuan
Nui Chua	2003	29,865	
Chu Mom Ray	2002	56,621	Kon Tum
Kon Ka Kinh	2002	41,780	Gia Lai
Yok Don	1991	115,545	Dak Nong, Dak Lak
Chu Yang Sin	2002	58,947	Dak Lak
Bidoup Nui Ba	2004	64,800	Lam Đong
Ta Dung	2018	20,937	Dac Nong
Cat Tien	1992	73,878	Dong Nai, Lam Dong, Binh Phuoc
Bu Gia Map	2002	26,032	Binh Phuoc
Con Dao	1993	15,043	Ba Ria-Vung Tau
Lo Go-Xa Mat	2002	18,765	Tay Ninh
Tram Chim	1994	7,588	Dong Thap
U Minh Thuong	2002	8,053	Kien Giang
Mui Ca Mau	2003	41,862	Ca Mau
U Minh Ha	2006	8,286	Ca Mau
Phu Quoc	2001	31,422	Kien Giang

Source: author's work based on VNFT, 2020

Figure 3.3. Location of Protected Areas in Vietnam

Vietnam's abundance of diverse natural resources holds immense potential for tourism development, while simultaneously posing challenges that require effective management and protection to ensure sustainable growth. The most pressing challenge lies in Vietnam's endangered biodiversity. According to Loiseau et al. (2020), a significant portion of Vietnam's flora and fauna faces severe threats, including: 21% of mammal species, 6.5% of bird species, 19% of reptile species, 24% of amphibian species, 38% of fish species, and 2.5% of plant species. Rapid deforestation stands as the primary culprit behind this biodiversity decline. In 1943, forest coverage stood at 14,352,000 hectares, representing 43.7% of Vietnam's total land area (Meyfroidt and Lambin, 2008). Over the ensuing 50 years, deforestation proceeded at a staggering pace of approximately 1,000–2,000 square kilometers per year (Cresswell and Maclaren, 2000), drastically reducing forest cover to 24.7% by 1992 (Meyfroidt and Lambin, 2008). Root causes of this deforestation include illegal logging, slash-and-burn agriculture, particularly among ethnic minorities, land clearing for human activities like agriculture and infrastructure development, and natural disasters (Nuwer and Bell, 2014). Notably, during the Vietnam war (between 1960 and 1971), the United States military sprayed over 80 million liters of herbicides over South Vietnam, significantly impacting over 3 million hectares of forests (Arthur et al., 2002). This constitutes one of the largest ecological destruction activities in the history of wars, impacting tropical forest ecosystems in a manner unlike any natural phenomenon (Ashton, 1986). This is one of the primary reasons for the transformation of forest areas in Vietnam towards a declining trend. By 2005, reforestation efforts boosted forest cover to 38.2%, but a substantial portion of this consisted of low-biodiversity commercially oriented plantations (Meyfroidt and Lambin, 2009). Currently, only approximately 0.5 million hectares of primary forests remain scattered across the Central Highlands, Southeast, and North Central regions, while most of the original mangrove forests have vanished (MONRE, 2022).

In conclusion, Vietnam's natural resources form the bedrock of the country's tourism, serving as a primary draw for visitors. To fully capitalize on these benefits and maintain the quality of tourism products, it is paramount to prioritize the preservation and sustainable management of these natural resources.

Environmental Management

The introduction of environmental protection requirements and concepts in Vietnam commenced with the promulgation of the Law on Environmental Protection in 1993 (Nguyen and Le, 2020). This law, alongside a comprehensive body of legal documents and regulations,

has assumed a pivotal role in environmental management within the country. From a legal standpoint, the Constitution of the Socialist Republic of Vietnam, specifically Articles 29 and 84, establishes fundamental principles for environmental protection applicable to diverse sectors, regions, organizations, and individuals (Nguyen et al., 2022).

In terms of institutional arrangements, the National Assembly of Vietnam established the Ministry of Science, Technology, and Environment in 1992. The National Environmental Agency was subsequently founded in October 1993. Each province and city has Offices of the Department of Science, Technology, and Environment (Nguyen and Le, 2020). This institutional framework is gradually implementing management activities in compliance with legal requirements. The network of information and public engagement is also expanding to raise public awareness of environmental issues. Scientific research and the establishment of monitoring and environmental forecasting facilities have been strengthened, making the data collected on the current state of the environment nationwide more systematic and accurate (Nguyen, 2014).

Despite concerted efforts and legislative initiatives aimed at environmental management, the burgeoning tourism in Vietnam has emerged as a significant contributing factor to various environmental problems and conflicts (Tien et al., 2019). The natural environment has experienced substantial degradation, primarily traceable to the establishment of agrarian economies and colonial exploitation during the colonial era. This degradation was further exacerbated by the military conflicts and wars that plagued the 20th century (Gupta, 2005). While various forms of sustainable tourism were introduced in Vietnam in the mid-1990s to safeguard natural resources and heritage, their effectiveness has been hampered by regulations inherited from the colonial era and perpetuated by the post-war socialist state (Cong and Chi, 2021).

Besides, coastal tourism cities have witnessed the most rapid growth in Vietnam's tourism, and while infrastructure has expanded, waste management capabilities have remained inadequate (Tsai et al., 2021). This has resulted in insufficient solid waste management, leading to surface pollution in crucial natural tourist destinations and causing significant economic harm. Vietnam produces an estimated 1.8 million tons of plastic waste annually, placing it among the top five nations contributing approximately 13 million tons of plastic waste to the ocean each year. In addition, Vietnam falls behind other developing Southeast Asia countries in most aspects of environmental sustainability (Tien et al., 2019). The country faces severe air pollution, inadequate wastewater treatment systems, and limited compliance with environmental regulations.

In conclusion, Vietnam has made significant strides in its environmental protection efforts over the past few decades, with the enactment of the Law on Environmental Protection in 1993 and the establishment of key institutions. Despite these commendable efforts, the rapid growth of the tourism in Vietnam has emerged as a prominent contributor to various environmental issues and conflicts. To address these challenges and enhance its environmental sustainability, Vietnam must continue to strengthen its regulatory framework, invest in robust waste management infrastructure, and promote sustainable practices within the tourism sector. By implementing these measures, Vietnam can safeguard its natural resources and heritage for future generations while mitigating the environmental degradation associated with its rapid development.

Cultural Resources

Culture is the foundation and environment for tourism to emerge and develop (Van Vu, 2020). Alongside natural resources, culture is one of the defining factors for the tourism development of a country, region, or locality. The value of cultural heritage, including historical sites, architectural marvels, art forms, customs, festivals, traditional occupations, and economic, political, and communal achievements, associations, cultural and artistic institutions, museums, and more, provides opportunities for tourists to explore, enjoy, and for tourism to utilize and capitalize upon (Tu, 2019). With a rich history spanning over 4,000 years, Vietnam possesses an abundance of tangible and intangible cultural heritage. This treasure holds immense value for future generations to inherit, preserve, and utilize for socio-economic development, particularly tourism (Tu, 2019). The Resolution 08-NQ/TW of the Vietnamese Prime Minister emphasizes the preservation of culture and the promotion of traditional values as a top priority in the development of tourism as a key economic sector (PMVN, 2017b). The Tourism Development Strategy of Vietnam until 2030 further underscores the significance of creating cultural tourism products to conserve and enhance the value of cultural, historical, and traditional heritage (PMVN, 2020b). Currently, Vietnam has 8 heritages inscribed by UNESCO (Table 3.3), 3,447 national heritage; 95 special national heritage; 142 national treasures; 228 intangible cultural heritage inscribed to the list of national intangible cultural heritage. The system of museums has been expanded to 159 museums, including 125 public museums, 34 private museums, where there are over three millions documents and antique objects (Tu, 2019). It is noteworthy that a significant portion of the intangible cultural heritages recognized by UNESCO belongs to ethnic minority communities. Each ethnic community possesses a unique culture and cuisine that contributes to the rich and diverse

tapestry of Vietnamese culture and cuisine, forming a vibrant picture that highlights the distinct identity of each ethnic group and region (Michaud and Turner, 2017). These include the cultural space of 'Cong-chieng' music in the Central Highlands; the 'Then' singing of the Tay, Nung, and Thai ethnic groups; the 'Xoe' dance of the Thai people, Cham pottery. In regions with significant ethnic minority populations, community-based tourism and homestays are being developed to meet the growing demand from tourists. Notable examples include the community-based tourism among the Thai people in Ban Men village; Ang village; the Hmong community in Cat village; and the Dao community in Nam Dang village.

Table 3.3. UNESCO World Heritage Sites in Vietnam

Heritages	Year of recognition	Type
Complex of Hue Monuments	1993	Cultural
Ha Long Bay	1994	Natural
Hoi An Ancient Town	1999	Cultural
My Son Sanctuary	1999	Cultural
Phong Nha-Ke Bang National Park	2003	Natural
Central Sector of the Imperial Citadel of Thang Long	2010	Cultural
Citadel of the Ho Dynasty	2011	Cultural
Trang An Landscape Complex	2014	Mixed

Source: author's work based on UNESCO, 2020

Traditional festivals are cultural resources with immense tourism value (Foncham, 2023). These vibrant celebrations represent a unique form of cultural expression that mirrors the spiritual essence of each nation or serves as a collective gathering of the people (Nguyen and Nguyen, 2022). In Vietnam, festivals typically consist of two main components: the ceremonial aspect and the festive celebration. The latter particularly thrives with the active participation of a large number of local residents, immersing them in the cultural tapestry of their heritage. Prominent festivals in Vietnam include the Hung Temple Festival (Phu Tho), Huong Pagoda Festival (Hanoi), Yen Tu Festival (Quang Ninh), Lim Festival (Bac Ninh), Long Tong Festival (Tuyen Quang), and Cau Ngu Festival (Hue City). In addition, numerous cultural tourism events have emerged, catering to diferent regions. Among these, the Hue Festival holds the distinction of being the most unique cultural tourism event in Vietnam. Alongside Hue, numerous regions have successfully organized grand-scale festivals that have captured international attention. These include the Nha Trang Sea Festival, Ha Long Carnival, Central Highlands Gong Festival, Hau Giang Rice Festival, Southern Fruit Festival, Buon Ma Thuot Coffee Festival, and Dalat Flower Festival. These festivals have generated a 'cultural impact', fostering cross-cultural understanding and introducing Vietnamese culture to the

world, leaving a lasting and profound impression on both domestic and international tourists (Trinh and Ryan, 2017).

Traditional craft villages are a significant cutural tourism resource that draws tourists with their unique handicraft products and the traditional methods of their creation (V. Hieu and Rasovska, 2017). Vietnam currently boasts over 2,000 traditional handicraft villages, each with a long and distinct history. Renowned craft villages include Bat Trang Pottery Village (Hanoi), Cat Dang Lacquer Village (Nam Dinh), Van Lam Embroidery Village (Ninh Binh), Dong Ho Painting Village (Bac Ninh), Fine Stone Village Non Nuoc Arts Village (Da Nang), Van Phuc Silk Village (Hanoi), My Dong Casting Village (Hai Phong), Bau Truc Pottery Village (Ninh Thuan), and My Nghiep Brocade Weaving Village (Ninh Thuan). These villages have played a crucial role in preserving and transmitting the cultural values, customs, arts, and handicrafts of the Vietnamese people. On the other hand, they have also fostered economic opportunities for local communities, particularly in areas with underdeveloped economies. Additionally, 'traditional craft village tourism' has encouraged communities to maintain and protect natural and cultural resources, contributing to sustainable development at the local level (Trinh and Ryan, 2017).

Traditional cuisine is a significant component of overall tourist spend. In Vietnam, mid-range tourists spend an average of around $11 on food and beverages for one day, constituting 27% of their daily budget for traveling in Vietnam (Mai and Nguyen, 2017). Moreover, tourists, when end up in a place, are more prone to staying longer because of the availability of food products and related activities (Buhalis et al., 2006). Local cuisine is considered to be a strategic management tool that can recreate a destination image and rejuvenate tourist flows towards a destination (Cohen and Avieli, 2004). Traditional Vietnamese cooking is greatly admired for its fresh ingredients, minimal use of dairy and oil, complementary textures, and reliance on rice, fish sauce herbs and vegetables. Vietnamese cuisine uses a combination of five fundamental tastes featured in most Vietnamese signature dishes, which makes this cuisine distinct from other cuisines elsewhere in the world.

In essence, Vietnam's rich cultural heritage serves as an irreplaceable asset, playing a crucial role in the nation's tourism sector. It enhances the country's attractiveness as a destination and showcases its unique cultural identity to a global audience. The meticulous preservation and promotion of these cultural resources will remain a critical factor in driving the country's tourism development and enhancing its international recognition.

The Political Situation and Social Stability

Throughout history, Vietnam has experienced many wars. In there, the Vietnam War was a conflict in Vietnam, Laos, and Cambodia from 1 November 1955 to the fall of Saigon on 30 April 1975 (Eckhardt, 1974; Katz, 1980). It was the second of the Indochina Wars and was a major conflict of the Cold War. After the fall of French Indochina with the 1954 Geneva Conference on 21 July, Vietnam gained independence from France but was divided into two parts: the Viet Minh took control of North Vietnam, while the United States assumed financial and military support for South Vietnam. The 1975 spring offensive saw the Fall of Saigon, marking the end of the war. North and South Vietnam were reunified on July 2nd the following year (Eckhardt, 1974; Katz, 1980; Ashton, 1986). The Vietnam War caused severe damage to infrastructure, resulting in substantial material losses and casualties. It also had a profound impact on production, business activities, and the daily lives of the population. During this period, Vietnam's tourism was virtually brought to a standstill, leading to a significant decline in international tourist arrivals and the destruction of numerous historical and cultural sites.

Currently, Vietnam is a socialist republic with a single-party political system, where the Communist Party of Vietnam holds a predominant political influence. The party provides strategic guidance and mandates all major policy decisions, which are then executed by the government (London, 2020). Along with preserving a single-party state system, safeguarding territorial integrity, and maintaining social order, its primary objective is economic growth, encompassing tourism. In a 2014 assessment, Vietnam was ranked as high in safety as the global average and significantly higher than most Asian countries (Khuong, 2014). According to the World Bank's Governance Global Indicator in 2023, Vietnam stands among the few Southeast Asian nations with notably higher scores compared to other countries in the region (WB, 2024). Furthermore, according to the World Economic Forum (WEF), the stability index of Vietnam ranks 61st out of 141 countries and territories in 2019, with the terrorism incidence index ranking at the very top (Table 3.4). This evidence clearly demonstrates that compared to numerous other nations, Vietnam maintains a relatively high level of safety and stability.

Table 3.4. Vietnam's Safety Index in 2019

Safety index	Value	Rank
Security (0-100)	-	61
Organized crime [1-7 (best)]	4.6	76
Homicide rate (per 100,000 population)	1.5	51
Terrorism incidence [0 (very high)-100 (no incidence)]	100	1
Reliability of police services [1-7 (best)]	4.2	79

Source: author's work based on WEF, 2019

Vietnam pursues a non-aligned stance, maintaining amicable relations with various nations regardless of their political ideologies. The country is a member of prominent international organizations, including the United Nations, World Trade Organisation, the UN Tourism, Association of Southeast Asian Nations (ASEAN), Non-Aligned Movement (NAM), and several other prestigious institutions (Tran, 2021). This commitment to global engagement has fostered a stable political and social environment, creating a safe and trustworthy atmosphere for tourists, particularly international visitors. A compelling illustration of this positive impact is the substantial increase in the number of international tourists visiting Vietnam after the country gained independence. The stable political and social climate has also facilitated consensus and efficiency in establishing and enforcing regulations related to tourism. Moreover, it has attracted both domestic and foreign investments into the development of tourism infrastructure, including improvements in physical infrastructure, airports, seaports, railways, and other related projects. This investment has bolstered Vietnam's tourism sector, enhancing its appeal to tourists from diverse countries. As a result of these efforts, Vietnam Tourism has garnered numerous prestigious awards from esteemed international organizations, further solidifying the country's position as a leading tourism destination in the region and globally. In 2019, Vietnam Tourism received accolades such as 'World's Leading Heritage Destination', 'World's and Asia's Leading Golf Destination', 'Asia's Leading Destination', 'Asia's Leading Cultural Destination', and 'Asia's Leading Culinary Destination' (VNAT, 2024).

While Vietnam has achieved significant progress in maintaining a stable political and social environment, several challenges still persist. Corruption remains a persistent issue, casting a shadow over the country's image and potentially deterring foreign investors and tourists. The detrimental impact of corruption on tourism development is well-documented, affecting both domestic and international travelers (Xu et al., 2023). As corruption becomes more pervasive, investments related to tourism and tourist destinations are likely to suffer adverse consequences. The opening up of Vietnam's economy has created opportunities for

diversification and personal enrichment for certain interest groups, inadvertently exacerbating corruption (Bai et al., 2013). Similar to other developing countries and transitioning economies with rapidly opening economies and weaknesses in economic and policy structures, Vietnam's corruption rate has been on the rise since the 'renovation' period (Tromme, 2016). Despite the implementation of a ten-year anti-corruption strategy plan in 2019, the issue remains prevalent. In the past decade (2012–2022), Party committees and Inspection Commissions at various levels have disciplined over 2,700 party organizations and nearly 168,000 party members, with more than 7,390 disciplined due to corruption (Vu, 2023). Furthermore, the rise of digital technology, high-tech crimes, and artificial intelligence poses new challenges for Vietnam's tourism sector (Hayward and Maas, 2021). To maintain its competitiveness in this evolving landscape, the country needs to invest in technological advancements and cybersecurity measures.

In conclusion, while Vietnam has made substantial progress in political stability, the challenges of corruption, territorial disputes, and adapting to digital and high-tech trends remain significant factors affecting the development and sustainability of its tourism sector. Addressing these challenges is crucial to ensuring Vietnam's continued attractiveness and competitiveness as a tourist destination in an ever-changing global landscape.

3.2.2. External Factors

The development of tourism in Vietnam is not only influenced by internal factors but is also significantly impacted by external factors. They include political dynamics in the region, international tourism competition, the impact of climate change, and the COVID-19 pandemic.

Political Dynamics in the Region

The Asia-Pacific region has emerged as a central battleground for political and economic competition between major nations due to the global economic and political shift eastward. Recognized as home to the world's largest and fastest-growing economies this region holds significant geopolitical influence, security, and strategic interests for powerful nations. The foreign policies of both the United States and China, particularly the United States-Indo-Pacific Strategy and China's Belt and Road Initiative, alongside trade tensions and the implications of the COVID-19 pandemic, have triggered a series of actions and reactions, exacerbating tensions between the two nations (Ronaldo et al., 2020). In addition, several medium-sized and small nations, including Australia, New Zealand, South Korea, and

ASEAN member countries, are exhibiting increased dynamism in their foreign policy approaches.

Southeast Asia, situated at the intersection of the Indian and Pacific Oceans and the convergence of the United States-Indo-Pacific Strategy and China's Belt and Road Initiative, stands out as one of the most dynamic regions globally, characterized by its political, cultural, and economic diversity (Crocco and Crocco, 2021). With a population of around 630 million people and an estimated Gross Domestic Product of around $3 trillion, the region is one of the world's fastest-growing economies, driven by a skilled and youthful workforce (Bong and Premaratne, 2018). This fosters extensive economic cooperation opportunities, particularly for major partners. The geopolitical competition between the United States significantly impacts the region, presenting a complex interplay of opportunities and challenges (Zhao, 2019). On the one hand, this rivalry provides Southeast Asia nations with increased access to markets, investments, technology, and enhanced security benefits. On the other hand, escalating tensions between the two major powers contribute to heightened instability in the region. Moreover, instability in Southeast Asia stems from the diversity of political forms and structures. The region harbors various political hotspots, posing potential conflict risks (SarDesai, 2018). The East Sea dispute emerges as a significant challenge in the relations among Southeast Asian countries and between Southeast Asia and China. Vietnam is directly involved in one of the contentious hotspots, particularly concerning the Paracel Islands, controlled by China since 1974. When Vietnam passed a law in 2012 demarcating Vietnamese sea borders to include the group of islands, China responded by creating a prefecture (Sansha) to administer the Paracel and Spratly Islands. In 2014, China constructed an airstrip on Phu Lam Island, part of the disputed Paracel Islands. In addition, Chinese research vessels, escorted by naval ships, continue maritime research activities in areas where Vietnam claims sovereignty. Concerns persist that Indonesia may soon be drawn into territorial disputes with China, joining Japan, Vietnam, and the Philippines as primary parties involved in such conflicts (Heiduk and Paul, 2015).

These territorial disputes can have a negative impact on tourism, as they may lead to heightened political tensions and uncertainty, potentially influencing the flow of tourists, particularly from countries directly involved in the disputes. Tourists may be more hesitant to travel to regions near disputed territories (Ingram et al., 2013). In addition, the volatile political landscape worldwide and within the region is experiencing rapid, complex, and unpredictable developments, including the rise in terrorist activities, which can indirectly impact Vietnam's tourism activities. This intricate geopolitical environment necessitates a

nuanced understanding of Vietnam's position and strategic considerations, particularly in managing territorial disputes and navigating the complex power dynamics within Southeast Asia. In this context, Vietnam must demonstrate flexibility and innovation to seize opportunities arising from the ascendance of major powers while maintaining a delicate balance in foreign relations to ensure economic growth, including the tourism sector.

Tourism Competition in Southeast Asia

Asia has emerged as a significant force in the global tourism landscape, challenging the traditional dominance of Europe and North America (Henderson, 2015). While China and India often command the spotlight, Southeast Asia is also experiencing rapid growth and a reshaping of tourism demand and supply. Despite their economic, social, and political diversity, Southeast Asian countries all recognize tourism's potential to generate income and employment. Tourist arrivals in the region are concentrated in a few countries, both in terms of market share and geographical distribution (Trupp et al., 2020). Since the 1960s, Thailand and Malaysia have been forerunners in tourism development, collectively welcoming over half of the total international tourists in the region (Hieu and Rasovska, 2017). Indonesia, with its rich ecological and cultural resources and improved accessibility thanks to the proliferation of low-cost airlines, has witnessed steady tourism growth (Silaban et al., 2023). The Philippines, previously isolated from air connections, has experienced tourism growth as accessibility options have expanded (Trupp et al., 2020). Other countries in the region, such as Cambodia and Laos, only opened their doors to international tourism in the 1990s (Guiney and Mostafanezhad, 2015). Myanmar's tourism sector faces ongoing ethical concerns. While boycotts related to the country's military government were debated until 2011, recent concerns have arisen regarding violence against the Rohingya minority. Despite these challenges, tourism in Myanmar is growing rapidly (Chaudhuri and Yamin, 2017).

In 2023, Southeast Asia welcomed 90 million international tourist arrivals (Table 3.5). The countries hosting the largest number of foreign visitors were Malaysia (29.5 million international tourists), Thailand (28.1 million international tourists), and Singapore (13.6 million international tourists) (UN Tourism, 2024). Vietnam attracted over 12.6 million international visitors, surpassing Indonesia's 11.7 million international tourist arrivals.

Table 3.5. International Tourist Arrivals to Southeast Asia

Countries	**International tourist arrivals** (million tourists)								
	2015	2016	2017	2018	2019	2020	2021	2022	2023
Malaysia	25.7	26.8	25.9	25.8	26.1	4.3	0.1	10.1	29.5
Thailand	29.9	32.6	35.5	38.2	39.8	6.7	0.4	11.1	28.1
Singapore	15.2	16.4	17.4	18.5	19.1	2.0	0.3	6.3	13.6
Vietnam	**7.9**	**10.0**	**12.9**	**15.6**	**18.0**	**3.8**	**0.1**	**3.6**	**12.6**
Indonesia	10.4	12.0	14.0	15.8	16.1	3.9	1.5	4.1	11.7
Philippines	5.4	6.0	6.5	7.2	8.2	1.4	0.1	2.6	5.5
Cambodia	4.8	5.0	5.6	6.2	6.6	1.3	0.1	2.2	5.5
Myanmar	4.7	2.9	1.4	1.4	4.3	0.9	0.1	0.2	0.9
Laos	4.7	4.2	3.9	4.2	4.4	0.4	0.03	1.3	2.9
Brunei	0.2	0.2	0.3	0.3	0.2	0.06	0.001	0.09	0.3

Source: author's work based on UN Tourism, 2024

According to the WEF (2024), Vietnam's tourism competitiveness has shown substantial improvement, moving up from the 75th position out of 141 economies in 2015 to the 59th position out of 140 in 2024. However, compared to other Southeast Asian countries, Vietnam's ranking lags behind Singapore, Thailand, Malaysia, and Indonesia, placing it above only Brunei, the Philippines, Laos, and Cambodia (WEF, 2024). Specifically, Vietnam's scores surpass the Southeast Asia regional average only in the areas of human resources and labour market, price competitiveness, ground and port infrastructure, tourist services infrastructure, natural resources (Table 3.6). All other indices fall below the regional average, particularly those related to the environment and tourism infrastructure. This implies that despite Vietnam's progress in enhancing its tourism's competitive edge, it still trails behind its regional counterparts, particularly Singapore and Thailand, in terms of overall competitiveness.

Table 3.6. Travel and Tourism Competitiveness Index of Southeast Asia in 2024

Index	**I**					**II**			**III**			**IV**			**V**		
Subindex	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
Singapore	5.6	6.1	5.1	5.3	6.8	5.7	5.7	2.6	6.0	4.4	4.4	1.5	3.7	5.0	5.2	4.5	3.8
Indonesia	4.6	5.7	3.7	4.1	4.8	4.2	4.0	5.2	5.4	3.9	1.9	5.4	3.9	3.0	4.3	5.4	4.8
Malaysia	4.9	5.8	4.5	3.8	5.6	4.2	4.9	6.2	4.9	4.0	2.7	3.9	3.4	3.8	4.3	4.8	3.8
Thailand	4.1	4.8	4.3	4.0	5.3	4.1	4.4	6.8	4.8	4.7	2.8	4.1	2.8	4.1	3.7	4.4	3.9
Vietnam	**3.8**	**4.6**	**4.0**	**4.1**	**4.7**	**4.0**	**3.9**	**6.9**	**3.6**	**3.9**	**2.5**	**3.8**	**1.4**	**1.2**	**4.1**	**3.8**	**3.6**
Philippines	4.0	5.0	3.9	3.7	4.3	3.4	4.1	6.1	3.7	2.8	2.7	3.2	2.1	1.7	4.1	3.8	3.7
Cambodia	3.4	5.0	3.7	3.6	3.7	3.2	3.9	4.6	2.3	2.2	1.7	1.2	1.1	1.4	3.5	3.6	3.4
Laos	3.5	5.0	3.6	3.6	3.7	3.0	3.6	4.3	2.1	2.2	1.6	1.2	1.2	1.1	3.5	3.6	3.2

Source: author's work based on WEF, 2024b

Note: I) enabling environment: 1) business environtment, 2) safety and security, 3) health and hygiene, 4) human resources and labor market, and 5) ICT readiness; II) the travel and tourism policy and enabling conditions: 6) prioritization of travel and tourism, 7) openness to travel and tourism, 8) price competitiveness, and 9) air transport infrastructure; III) infrastructure: 10) ground and port infrastructure, and 11) tourist services infrastructure; IV) the natural and cultural resources: 12) natural resources, 13) cultural resources, and 14) non-leisure resources; V) travel and tourism sustainability: 15) environmental sustainability, 16) travel and tourism socioeconomic impact, and 17) travel and tourism demand sustainability.

Therefore, competition in the Southeast Asia tourism has intensified as countries within the region vie for tourist arrivals and revenue generation. To sustain and expand its market share in the tourism sector, Vietnam must consistently strive to maintain and elevate the quality of tourism services, conserve and sustainably develop tourism resources, and continuously explore new avenues within the tourism.

Climate Change

Climate change poses significant challenges to the tourism, with four primary pathways of impact (Njoroge, 2015):

1) Direct climate impacts: Extreme weather events and climate change phenomena can cause infrastructure damage, increase emergency preparedness requirements, raise operating costs, and disrupt business operations.
2) Indirect environmental change impacts: The environment is a fundamental resource for tourism, and changes in the environment can affect ecosystems, water availability, and agricultural production, potentially impacting tourism destinations.
3) Impacts of mitigation policies on tourist mobility: National or international climate mitigation policies can affect transportation costs and service availability, potentially altering tourist travel patterns. The costs associated with environmental protection measures may also indirectly influence tourism demand.
4) Indirect societal change impacts: Climate change can lead to economic downturns and decreased the GDP, which may reduce disposable income and consumer spending, potentially impacting tourism demand.

In Vietnam, climate change and sea level rise scenarios were first introduced in 2009 by the Vietnam Ministry of Natural Resources and Environment (MONRE) (V. Da Huynh, 2018). According to data from this organization, climate change in Vietnam has manifested in the following ways (MONRE, 2022):

1) Average temperature rise: Over the past 60 years (1958–2018), the average temperature in Vietnam has increased by 0.89°C, averaging 0.15°C per decade. However, the rate of increase has not been uniform; the first 27 years (1958–1985) saw a minimal increase of 0.15°C, averaging 0.056°C per decade, while the subsequent 33 years (1986–2018) witnessed a more pronounced rise of 0.74°C, averaging 0.22°C per decade.
2) Increased rainfall: The average annual rainfall across Vietnam has experienced a slight increase, rising by 2.1% over 61 years. This increase is more pronounced in southern regions, particularly in South Central Vietnam, while it has decreased in northern areas and the western part of the Central Highlands.
3) Fluctuating storm activity: The number of storms and tropical depressions in the South China Sea has fluctuated over the years, ranging from a high of 20 storms in 2017 to a low of 4 storms in 1969. While the overall trend suggests a slight increase in storm activity in the East Sea, the number of storms that directly impact and make landfall in Vietnam does not show a clear pattern. From 1990 to 2018, there were 86 strong storms (category 12 and above), averaging 2–3 storms per year. These strong storms tend to occur later in the season, track more southwardly, and make landfall more frequently in the southern region.
4) Rising sea levels: Sea levels have risen at most monitoring stations (13 out of 15), with the highest rate of about 6 mm/year observed at Cua Ong, Bach Long Vi, and Con Dao stations. Sea levels have decreased at Co To and Hon Ngu stations. On average, sea levels along the Vietnamese coastline have risen approximately 2.7 mm/year.
5) Increasing El Nino and La Nina trends: The influence of El Nino and La Nina weather phenomena has shown increasing trends.

Vietnam is recognized as one of the countries most vulnerable to climate change. The increasing exposure to human and property hazards is the primary cause of the rising long-term economic damages from weather-related disasters (Schmidt-Thome et al., 2015). With a coastline stretching over 3,260 kilometers and numerous islands, Vietnam faces significant risks and potential impacts, particularly related to climate change and rising sea levels. The risks are escalating, especially for coastal and major urban areas, particularly coastal cities with high population densities and urban planning that often fails to consider climate change. These areas are also home to substantial assets, infrastructure, and populations vulnerable to losses (Da Huynh, 2018). Climate change affects natural ecosystems and influences the sustainability and quality of architectural structures, historical sites, and cultural heritage,

which are the primary focus of tourism activities. Climate change and rising sea levels significantly impact beaches and coastal islands, which are the most important forms of tourism in Vietnam (MONRE, 2022). With a coastline of over 3,200 kilometers, it is estimated that a 1-meter rise in sea levels would affect 5.2% of the natural area and 10.8% of the population, causing the disappearance of many beautiful beaches. The reduction or loss of tourism resources directly affects the quality of existing tourism products and hinders the development of new tourism products (Quach, 2019). Severe impacts also occur on tourism infrastructure due to storms, floods, coastal erosion, landslides along the coast, floods in mountainous areas, and urban inundation (Pham et al., 2018). Tourism activities are highly dependent on weather conditions, and abnormal and extreme weather events, occurring more frequently and intensively due to the influence of climate change, negatively impact travel and tourism activities. In recent years, climate change, manifested by rising sea levels, extreme weather, and unusual natural disasters, has posed a threat to numerous heritage sites in vulnerable areas such as coastal and riverbank regions, the central region, and the Mekong Delta. It is forecasted that in the coming years, climate change will continue to be the greatest threat to Vietnam's heritage sites, including many UNESCO-recognized World Heritage Sites like Hoi An, Hue, and My Son (MONRE, 2022).

The dynamism of the tourism market poses a significant challenge to Vietnamese tourism due to climate change. On the demand side, tourists are increasingly seeking destinations with favorable weather conditions, leading to potential seasonal fluctuations in tourism patterns. This could exacerbate the already high seasonality of Vietnam's tourism, with a significant drop in tourist arrivals during the rainy season. Additionally, damage to tourism infrastructure caused by extreme weather events could deter tourists and increase maintenance income (MONRE, 2022). On the supply side, climate change poses substantial risks to regions that rely heavily on tourism for their livelihood. Degradation of coastal areas, rising sea levels, and loss of biodiversity could render Vietnam less attractive to tourists, leading to a decline in visitor numbers. Moreover, these climate-related impacts could hinder the development of new tourism products and services, further impacting the industry's growth.

In summary, climate change poses a multifaceted threat to Vietnam's tourism. It can affect the livelihoods of destinations, reduce tourist arrivals, and cause productivity losses due to the costs of maintaining infrastructure and protecting the environment. To mitigate these risks, Vietnam must adopt proactive measures to adapt to climate change and enhance the resilience of its tourism sector.

The COVID-19 Pandemic

The coronavirus disease pandemic has had a profound impact on the global tourism and regional tourism development. Over the past few decades, the tourism sector has faced multiple crises due to infectious diseases such as Hand, Foot, and Mouth Disease in the United Kingdom (2001), Severe Acute Respiratory Syndrome in East and Southeast Asia (2003), Middle East Respiratory Syndrome in the Middle East (2012), the Ebola outbreak in Africa (2014), and the Zika mosquito epidemic (2016). The tourism is considered to be one of the most severely affected sectors during pandemics (Chen et al., 2007). The impact on travel demand is immediate, worsens as the disease progresses, and can persist for extended periods (Nguyen et al., 2022). The COVID-19 pandemic was initially identified in Wuhan, China, in December 2019 and rapidly spread across the globe, reaching pandemic proportions by March 2020 (Vu et al., 2022a). The COVID-19 pandemic has caused an unprecedented crisis for the global tourism (Sharma et al., 2021).

A report from the UN Tourism revealed a devastating plunge in international tourist arrivals, plummeting from 1.5 billion in 2019 to a mere 407 million in 2020. This staggering 72% decline in tourist arrivals was further compounded by a 63% drop in international tourism receipts and total export revenues from tourism (including passenger transport). The cumulative loss in revenues amounted to a staggering $1.1 trillion, making 2020 the worst year for the tourism on record (Figure 3.4). This unprecedented decline far surpassed the 4% drop experienced during the global economic crisis of 2009 (UN Tourism, 2024).

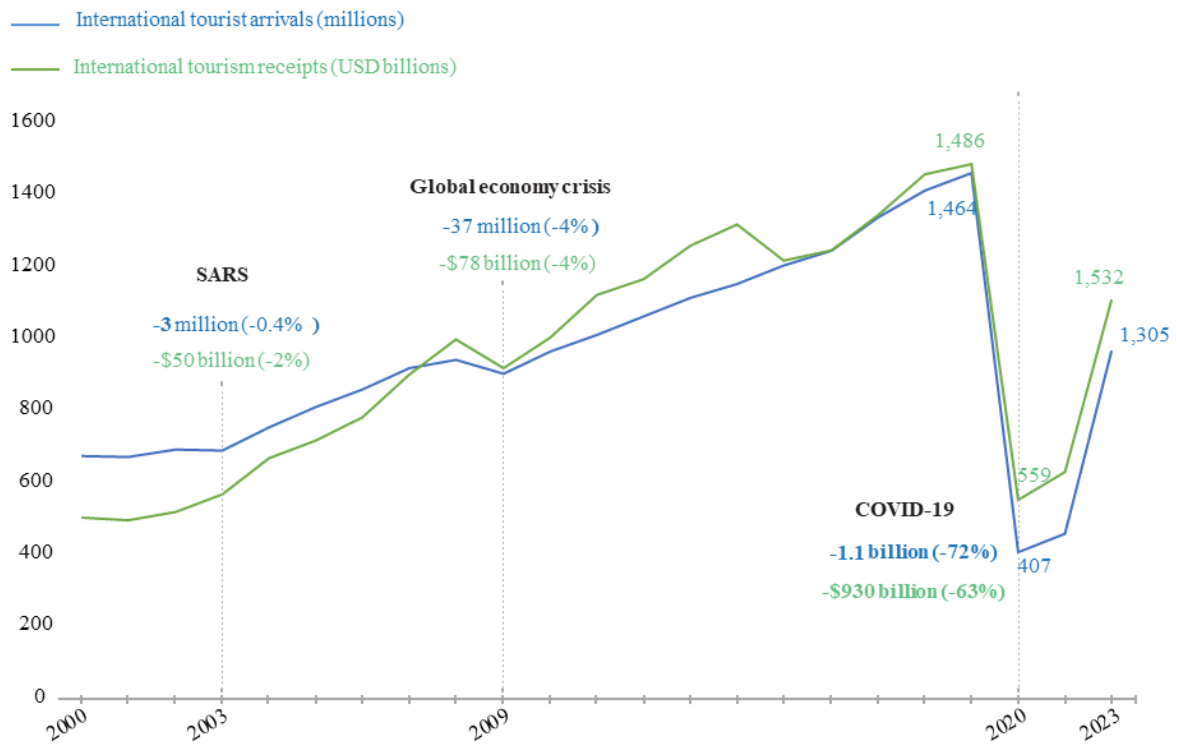

Figure 3.4. International Tourist Arrivals and Tourism Receipts (2000-2023)

Source: author's work based on UN Tourism, 2024

Most countries in the Southeast Asia region experienced a severe downturn in international tourism revenue in 2020 due to the COVID-19 pandemic. Vietnam was particularly hard hit, with a 82.6% decline in the total number of international tourist arrivals in 2020 compared to 2019, reaching only 3.837 million. This plunged further in 2021, with only 0.157 million international tourists, representing a staggering 96.7% decrease from the previous year (VNAT, 2023b). Compared to its Southeast Asian neighbors, Vietnam's sharp decline was attributed to the stringent travel restrictions and border closures implemented to contain the spread of COVID-19. These measures effectively prevented tourists from other countries from visiting Vietnam (Table 3.7).

Table 3.7. International Tourist Arrivals in Southeast Asia

Countries	**International tourist arrivals** (1,000 tourists)				
	2019	2020	2021	2022	2023
Malaysia	26,101	4,333	135	10,071	29,466
Thailand	39,874	6,696	428	11,165	28,150
Singapore	19,116	2,726	330	6,305	13,597
Vietnam	**18,009**	**3,837**	**157**	**3,661**	**12,602**
Indonesia	16,108	4,052	288	4,052	11,683
Philippines	8,260	1,482	164	2,653	5,452
Cambodia	6,611	1,306	196	2,277	5,453
Myanmar	4,364	904	130	233	967
Laos	4,384	431	36	1,295	2,862
Brunei	323	62	1	97	278
Timor-Leste	81	18	3	5	41
Southeast Asia	**138,633**	**25,840**	**3,341**	**42,896**	**90,009**

Source: author's work based on UN Tourism, 2024

The drastic drop in international tourist arrivals to Vietnam resulted in a substantial decline in international tourism revenue. Between 2019 and 2023, Vietnam's international tourism revenue plunged from $11,792 million to $2,500 million in 2020 and then improved to $9,200 million in 2023. While some countries began to recover in 2021 and 2023, the recovery rates were uneven. Thailand and Malaysia experienced substantial increases from 2020, while Vietnam's recovery was relatively modest (Table 3.8). Tourist arrivals from major markets also dropped sharply, with declines of 83.5% from China, 80.4% from South Korea, 78.4% from Japan, 78.8% from Taiwan, 46.6% from Cambodia, and 80.7% from Malaysia. European tourists to Vietnam in 2020 decreased by 69%, and American tourists decreased by 75.7% compared to 2019. Domestic tourism in Vietnam also suffered, with a 34% decline in 2020 compared to 2019, resulting in a decrease in the number of domestic tourists from 85 million in 2019 to 56 million in 2020 (VNAT, 2022).

Table 3.8. International Tourism Receipts in Southeast Asia

Countries	**International tourism receipts** (million USD)				
	2019	2020	2021	2022	2023
Thailand	59,810	13,403	5,134	14,874	29,708
Malaysia	19,829	2,974	78	6,520	14,918
Singapore	20,344	5,443	4,016	11,396	21,067
Indonesia	16,911	3,382	521	6,781	14,001
Vietnam	**11,792**	**2,500**	**149**	**3,841**	**9,200**
Philippines	9,781	1,791	600	4,174	9,118
Cambodia	4,769	1,015	184	1,418	3,083
Myanmar	2,483	-	-	-	-
Laos	935	213	1	265	-
Brunei	217	38	2	14	71
Timor-Leste	70	26	12	43	51
Southeast Asia	**146,942**	**31,325**	**10,906**	**49,458**	**102,936**

Source: author's work based on UN Tourism, 2024

The protracted COVID-19 pandemic has had a devastating impact on the tourism in Vietnam, crippling thousands of businesses and causing widespread job losses. Many tourism companies have reached a critical juncture, struggling to maintain even minimal operations due to a lack of resources. This dire situation is further compounded by the heavy debt burden carried by most companies, rendering them incapable of making payments during this challenging period. In 2020, new travel company registrations plummeted to just 201, a drastic decline from the 725 new licenses issued in 2019. This trend reflects a deepening crisis, as the number of travel companies dissolving nearly tripled. Specifically, out of 2,519 international travel companies, over 338 submitted applications for business license withdrawal, and 90% of them have ceased operations altogether. Large travel companies have been forced to significantly downsize their operations, with only 30% of their staff deployed at physical locations. Employees have been subjected to unpaid leaves or salary reductions of up to 80%. In 2021, the number of travel companies seeking business license withdrawal surged to nearly 30% of the total licensed firms. The current scenario indicates a grim reality with only around 2,200 travel companies retaining business licenses, many of which remain inactive or closed due to a dearth of customers (VNAT, 2022).

The accommodation sector was among the earliest and most severely impacted segments due to the COVID-19 pandemic. Following a period of restricted operations, many establishments were forced to close down. The impact of COVID-19 varied across different types, scales, and quality of tourism businesses. For 3-, 4-, and 5-star establishments, most opted for significant discounts, adapted to market trends, and attracted domestic customers

and business travelers, while some businesses temporarily suspended operations (VNAT, 2022). For 1- and 2-star establishments and those primarily catering to domestic tourists, operations were severely curtailed. Most community-based tourism facilities lacked guests, and many shared accommodation platforms like Airbnb almost ceased operations. Moreover, approximately 60% of tourism workers lost their jobs due to border closures and domestic travel restrictions imposed to curb the COVID-19 outbreak. The number of employed workers in the industry fluctuated around 30–40% (GSO, 2021). In 2021, the unemployment rate in the tourism sector further escalated, reaching around 90% of the total workforce in tourism businesses and 70–80% of the workforce in accommodation facilities (VNAT, 2022).

The COVID-19 pandemic have severely impacted the global tourism, leading to unprecedented crises. Southeast Asian countries, including Vietnam, experienced significant declines in international tourism revenue. The pandemic has also adversely affected tourism businesses, resulting in closures, layoffs, and financial struggles. The Vietnamese tourism sector is grappling with these formidable challenges, compelling the need for strategic initiatives to bolster resilience and foster a robust recovery in the post-pandemic era.

3.3. Tourism in Vietnam: Statistical Outlook

This subchapter provides a statistical analysis of the key aspects of Vietnam's tourism, including an overview of tourist arrivals and revenue, the current state of tourism infrastructure, and the role of the workforce in supporting and driving the industry's growth.

3.3.1. Tourist Arrivals and Revenue

Data from the Vietnam National Administration of Tourism (VNAT) indicates a consistent upward trajectory in the number of tourists visiting Vietnam, from 1.8 million tourists in 2007 to 120.6 million tourists in 2023. In 2023, Vietnam achieved a outstanding record of welcoming 12.6 million international tourists (Figure 3.5).

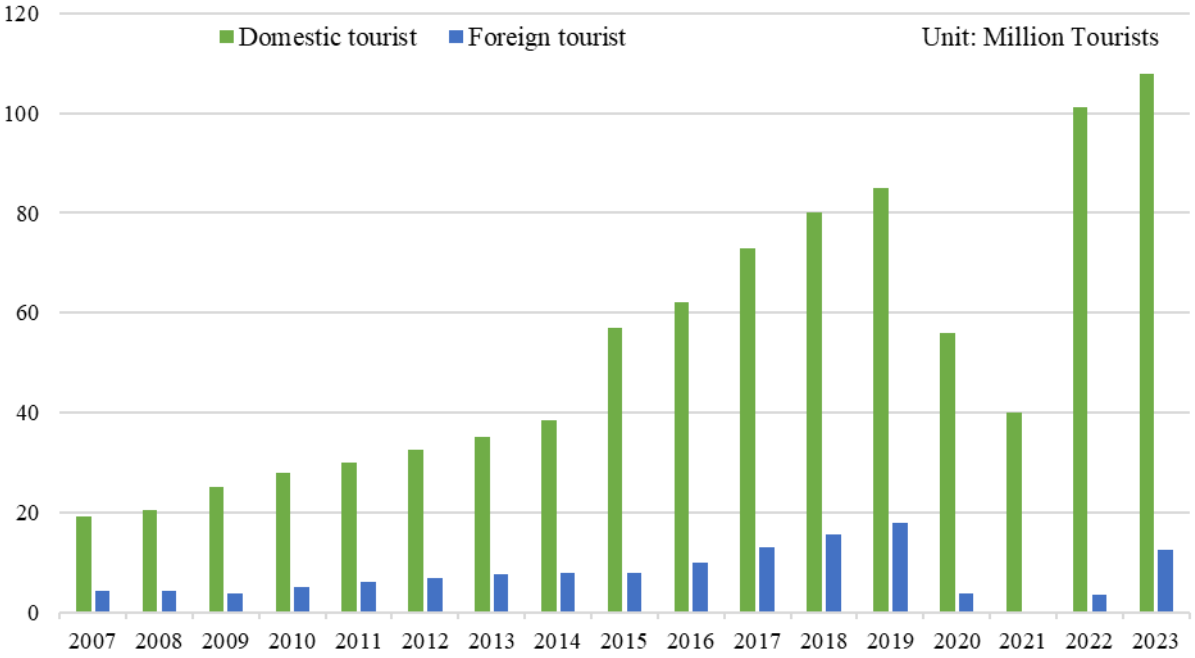

Figure 3.5. Tourist Arrivals in Vietnam (2007-2023)

Source: author's work based on VNAT, 2023a, 2023b, 2024

With this remarkable growth, tourism has emerged as a significant contributor to the country's economic well-being. In 2023, the total revenue generated from international tourism reached $9.2 billion, accounting for 31.1% (Figure 3.6). This highlights the growing importance of tourism as a driver of economic growth and diversification for Vietnam.

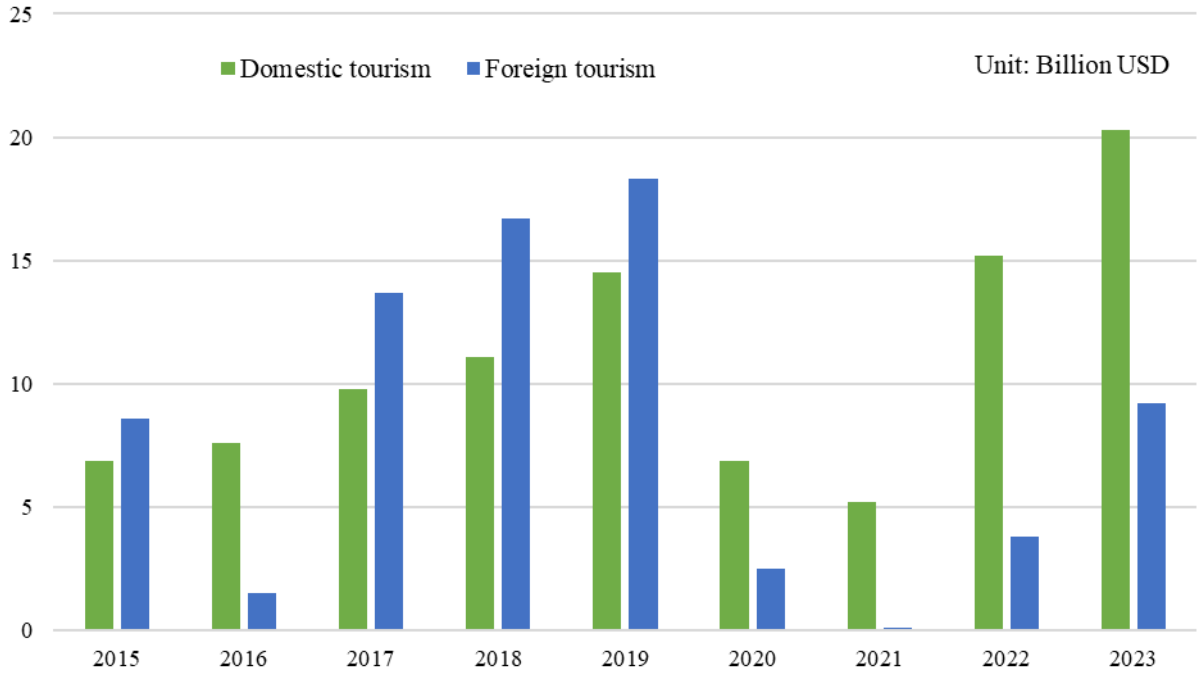

Figure 3.6. Revenue from Tourism in Vietnam (2015-2023)

Source: author's work based on VNAT, 2023a, 2023b, 2024

According to the Vietnam National Administration of Tourism (2024), Asia continues to dominate the international tourist market in Vietnam, accounting for nearly 77.6% of the total arrivals. Within Asia, Northeast Asia holds the largest share, attracting 67% of international visitors. Southeast Asia follows closely behind, with 14.5% of the market share. European markets account for 11.6% of the total, while the Americas represent 7.2%, Australia contributes 3.4% and Africa (0.2%) (Figure 3.7). This diverse mix of international tourists presents a favorable outlook for the continued growth of Vietnam's tourism. Air transport remains the most popular mode of arrival for international tourists in Vietnam, with 79.8% of visitors opting for this mode. Arrivals by road account for 18.7%, while sea arrivals represent only 1.5% (VNAT, 2024). It is noteworthy that the proportion of tourists arriving by air in Vietnam is significantly higher than the global average (Nguyen, 2023). This suggests a strong preference for air travel among tourists visiting Vietnam.

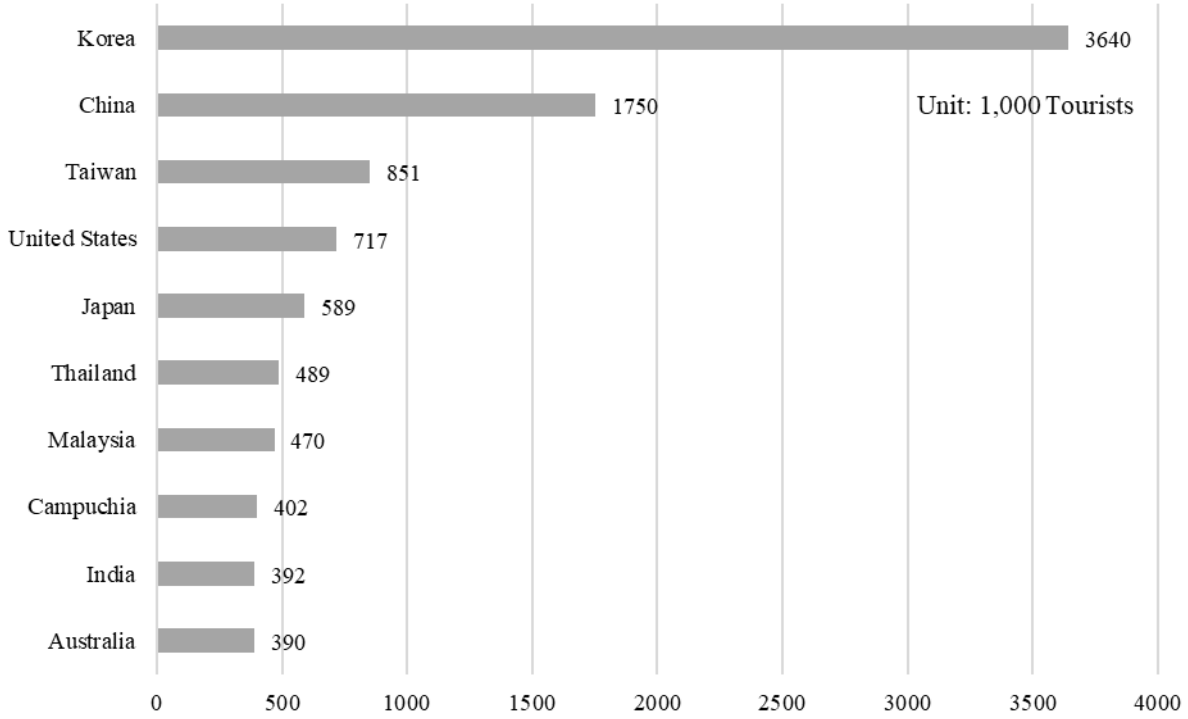

Figure 3.7. Countries with the Highest Number of Tourists Visiting Vietnam in 2023

Source: author's work based on VNAT, 2024

The domestic tourism market in Vietnam has experienced exponential growth, reaching 108 million trips in 2023. This growth is closely aligned with the country's rising economic prosperity, which has provided Vietnamese citizens with increased opportunities and desire to travel. Domestic tourists play a significant role in the overall tourism revenue, with their spending increasing by 5.5 times from 2007 to 2023 despite a growth rate of only 1.5 times in

the number of domestic tourists during this period. This trend reflects the growing spending power of Vietnamese citizens as their incomes and living standards improve. The surge in domestic tourism is attributed to several factors: the rapid expansion of the middle class, individuals with high travel demand; improved accessibility and affordability of air transportation, facilitated by the growth of budget domestic airlines; and the expansion of budget accommodation options (WB, 2019). Traditional domestic tourist markets typically offer easy accessibility and amenities, including beach resorts in places like Phu Quoc, Da Nang, Quang Nam, Cua Lo, Sam Son, Quang Ninh, Hue, Binh Dinh, Nha Trang, Mui Ne, Ninh Thuan, and Vung Tau; mountain resorts in Sa Pa, Ha Giang, and Da Lat; and urban tourism in Hanoi, Ho Chi Minh, Da Nang, and Hue. Domestic tourists primarily engage in leisure and recreational activities, vacationing, and sightseeing. Other popular purposes include cultural exploration, visiting relatives, educational tourism, and sports and adventure tourism.

The remarkable growth of the tourism sector has made a substantial contribution to Vietnam's overall the GDP, solidifying its strategic position as a foundational industry. This transformation has elevated tourism from a supporting role to a driving force of the national economy. The direct contribution of tourism to the GDP has been steadily increasing, accounting for a growing share of the economy. In 2015, tourism contributed 6.3% to the GDP, and by 2019, this share has risen to 9.2%; then it decreases to 6.8% in 2023 (WTTC, 2024) (Figure 3.8). In addition, Vietnam's tourism contribution to the GDP remains relatively lower compared to other Southeast Asia countries and globally (WB, 2019). This suggests the need to strengthen the linkages between the tourism sector and other industries, enabling workers and businesses in other sectors to indirectly benefit from Vietnam's burgeoning tourism. Enhancing these linkages can be achieved through various approaches, such as fostering backward linkages with suppliers of goods and services to the tourism, promoting the development of tourism-related industries, and encouraging tourism-induced investments in other sectors. By strengthening these connections, Vietnam can maximize the economic impact of its tourism and further contribute to its overall economic growth.

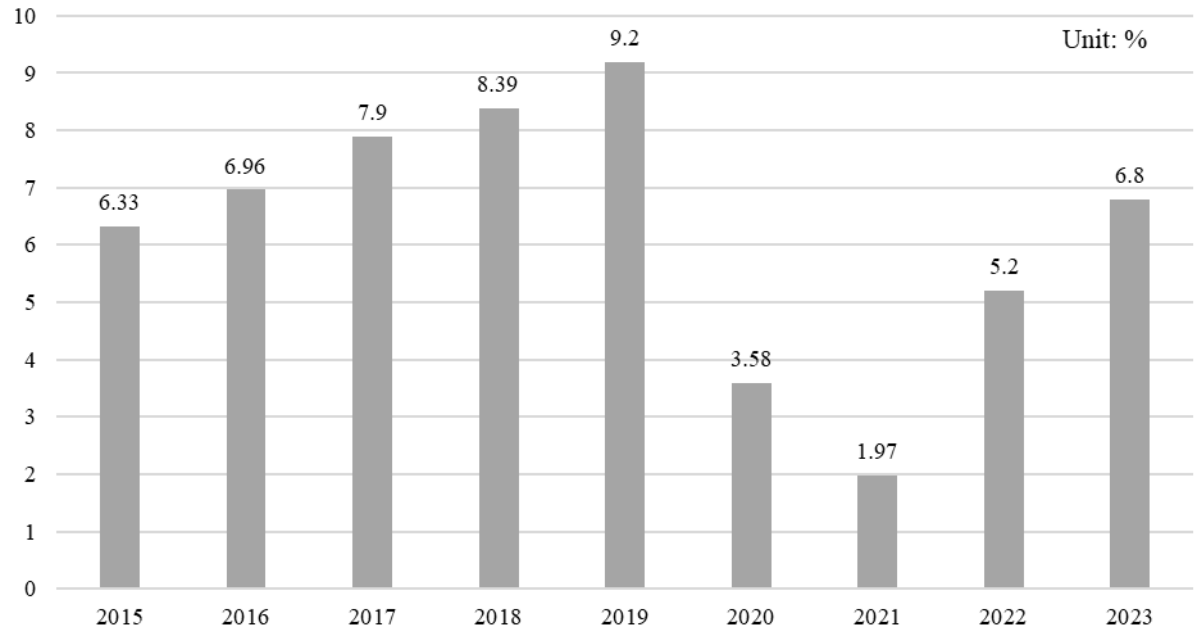

Figure 3.8. Contribution Rate of Tourism to GDP in Vietnam (2015-2023)

Source: author's work based on VNAT, 2024

3.3.2. Tourist Infrastructure

The robust demand from both domestic and international tourists has driven the expansion of the accommodation system in Vietnam. In 2023, the estimated total number of accommodation facilities nationwide reached approximately 38,000 establishments, offering 780,000 rooms (VNAT, 2024). This represents a significant growth from 2015, when there were 19,000 establishments with 370,000 rooms. The number of accommodation facilities grew by 1.6 times, increasing from 19,000 to 38,000 establishments (an average annual increase of 16.0%). The number of rooms experienced even faster growth, from 370,000 to 780,000 rooms (Figure 3.9). This faster growth rate in the number of rooms compared to the number of accommodation establishments reflects a trend toward larger-scale lodging developments capable of hosting bigger groups of tourists. This expansion in lodging options has contributed significantly to Vietnam's tourism growth and diversification.

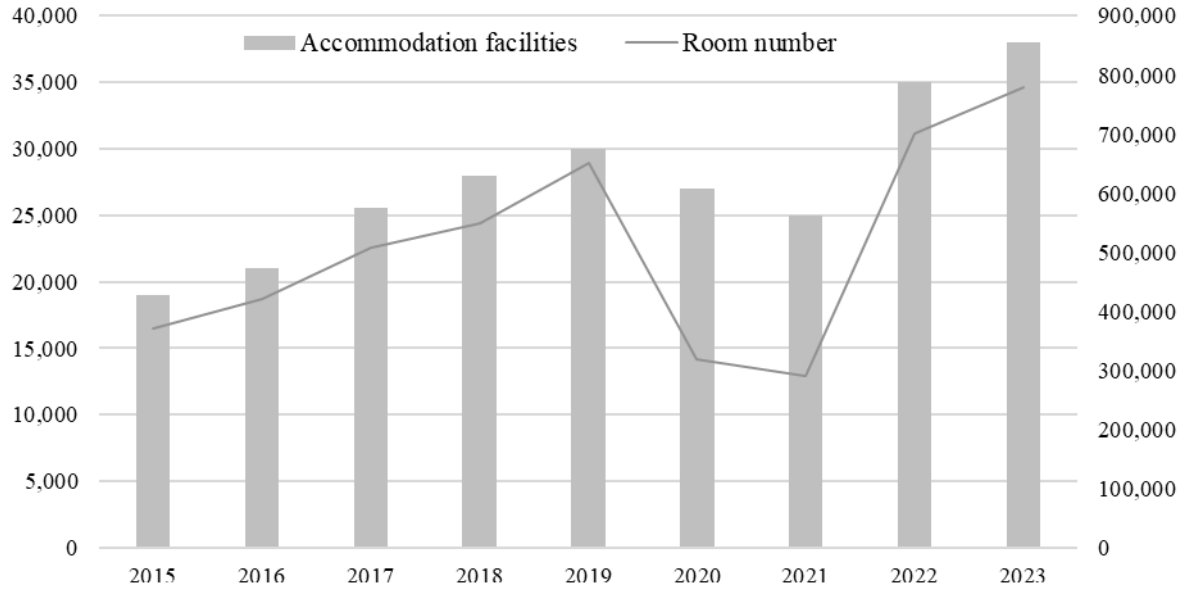

Figure 3.9. Number of Tourism Businesses and Rooms in Vietnam (2015-2023)

Source: author's work based on VNAT, 2024

To cater to the growing demand for unique and high-quality experiences, Vietnam has witnessed the emergence of world-class luxury resorts in prominent tourist destinations like Da Nang, Hoi An, and Phu Quoc. Alongside this trend, there has been a surge in large-scale resort and entertainment complexes that provide a comprehensive range of services to guests, encompassing dining, accommodation, entertainment, and sightseeing. These complexes aim to extend the duration of tourist stays and increase their expenditure within the destination. In 2023, Vietnam had 615 high-end accommodation establishments (4–5 stars) with over 57,295 rooms (VNAT, 2024). The accommodation landscape in Vietnam has expanded to include various other forms, notably the 'connective' types like Airbnb, homestays, boutique hotels, and timeshare models. These options cater to a wider range of tourist preferences and budgets. Additionally, the lodging industry has embraced digital technology, with a growing trend towards online booking, electronic payments, and smart technology applications. This digital transformation has enhanced the guest experience and streamlined operations.

3.3.3. Workforce

The tourism sector serves as a significant source of employment opportunities in Vietnam, accounting for approximately 10.9% of the country's total workforce in 2023 (WTTC, 2024). The tourism directly employed 5.62 million employers, and another one million individuals were indirectly engaged in tourism-related activities (VNAT, 2024). The tourism workforce is primarily composed of young workers, and the gender composition varies across different sectors. Women predominantly occupy roles in the hotel and restaurant sector, while men

dominate the field of tour guiding, accounting for over 67% of tour guides in 2023. The proportion of tour guides with university degrees or higher was 71.3%, and 10.7% held other qualifications (VNAT, 2024). To address the growing demand for skilled tourism workers, the network of tourism education and training institutions has expanded significantly. In 1991, only three universities offered tourism programs and three vocational institutions provided tourism training. By 2023, nearly 195 tourism education and training institutions had emerged, including 65 universities with tourism departments, 55 colleges, 71 vocational schools, and four vocational training centers (VNAT, 2024). Despite this progress, a gap still exists between the quality of tourism workforce training and the requirements of the industry. To bridge this gap and ensure a skilled and competent tourism workforce, Vietnam needs to further enhance the quality of tourism education and training, align curriculums with industry demands, and provide more opportunities for practical training experiences. This will empower Vietnamese tourism workers to meet the evolving needs of the industry and contribute to the continued growth of Vietnam's tourism sector.

Summary of Chapter 3

Chapter 3 presents a comprehensive analysis of the formation and development of Vietnam's tourism, including a historical approach, factors influencing tourism development, and statistical reports on domestic tourism trends. The formation and growth of Vietnam's tourism sector are divided into six significant historical phases. Specifically, Vietnam's tourism traverses a remarkable journey, marked by both challenges and successes. Since the implementation of the Renovation Process, tourism emerges as a pivotal economic sector, contributing significantly to the country's socio-economic development. However, despite this impressive growth, Vietnamese tourism still faces certain limitations that require immediate attention. With its inherent potential and advantages, Vietnam holds the opportunity to elevate its tourism to even greater heights in the future. To achieve this goal, the country must steadfastly address existing shortcomings and capitalize on emerging opportunities to foster sustainable tourism development. Additionally, the chapter analyzes factors affecting the development of the tourism sector, categorized into internal factors (such as natural resources, environmental management, culture, infrastructure, and human resources) and external factors (including regional competition in Southeast Asia, the impact of climate change, and the effects of COVID-19). Understanding these factors not only identifies opportunities and challenges for the tourism sector but also provides a scientific foundation for formulating appropriate development policies.

Chapter 4. Tourism in the Binh-Tri-Thien Region

Following the diagnosis of Vietnam's tourism in Chapter 3, Chapter 4 analyzes the tourism situation of the Binh-Tri-Thien (BTT) region. The chapter is divided into two main subchapters: the first analyzes factors affecting tourism development in the BTT region, including internal factors (geographical location, natural conditions, socioeconomic conditions, human resources, environmental management) and external factors (climate change, COVID-19). The second subchapter presents an overview of the current state of tourism development in the BTT region, focusing on the period when tourism affirmed its role as a key economic sector. This content will be evaluated based on criteria such as the number of tourists, tourism revenue, the development of tourism infrastructure, and the quality of workforce.

4.1. Factors Influencing Tourism Development

The development of tourism in the Binh-Tri-Thien region is shaped by a combination of internal and external factors. Internal factors include the country's territorial geographical location, topography, climate, hydrology, biodiversity, cultural resources, infrastructure, population and labor resources, and environmental management. Meanwhile, external factors such as climate change and the COVID-19 pandemic have also significantly impacted tourism growth.

4.1.1. Internal Factors

The region's tourism development is strongly influenced by various internal factors. These elements collectively create the foundation for attracting visitors and supporting the growth of the tourism.

Territorial Geographical Location

The BTT region encompasses a natural area of 17,647.1 km² and lies between latitudes 16°00' to 18°00'N and longitudes 105°30' to 108°40'E (Figure 4.1) (PCQBP, 2020b; PCQTP, 2022; PCTTHP, 2020b). The region borders Ha Tinh province to the north, Laos to the west, Da Nang city to the south, and the East Sea to the east. Notably, the 1,294 km long border with Laos facilitates economic and cultural exchange between the two countries (T. Le and Nguyen, 2012). Furthermore, the Lao Bao border gate on Highway 9 serves as a crucial connection point on the East-West economic corridor stretching through countries of the expanded Mekong sub-region. This strategic location acts as a gateway to the sea for Laos

and northeastern Thailand and Myanmar (Phan, 2019). Consequently, the region has been emphasized by these countries for fostering cooperative relationships and joint development, particularly in tourism.

Thefore, the BTT region's geographical location offers distinct advantages, encompassing g natural resources, economic potential, political significance, and cultural richness. Its position as a 'bridge' between Vietnam's economic regions, Indochina countries, and Southeast Asia presents significant opportunities for intra-regional, interregional, and international connectivity. However, this location also exposes the region to the detrimental effects of natural disasters like storms, floods, and droughts, posing considerable challenges to economic development, including tourism operations and scheduling (Nguyen and Phan, 2022).

Figure 4.1. Location of the Binh-Tri-Thien Region

Topography

The terrain of the area is generally quite complex, with the altitude gradually lowering from west to east. It encompasses the following terrain types (Figure 4.2): mountainous and midland terrain; coastal plains with sand dunes; and coastal lagoons (Le, 2001).

Mountainous and midland terrain, distributed in the southwest and northwest of the BTT region (bordering the Vietnam – Laos border), features elevations ranging from 750 to 1,800 meters above sea level. This area is home to the peaks of the Truong Son mountain range, which divides the climate between West and East Vietnam. Most mountain ranges run northwest-southeast, creating a natural wind barrier (northeast wind in winter and southwest wind in summer in Vietnam). Notably, this area also boasts a unique limestone mountain area with a vast and renowned cave system. The Ke Bang limestone massif (average altitude about 800–1,000 meters) offers the most scenic landscape in the region (Le, 2001). Quang Binh province, in particular, holds a significant portion of Vietnam's caves (73 out of 135 km), including the world-famous Phong Nha, Thien Duong, Son Doong, En Cave, Tu Lan, and Dark Cave. The mountainous terrain of the BTT region presents a significant opportunity for exploiting and developing various types of cave tourism and ecotourism. However, the fragmented nature of the terrain, especially in the border areas with high mountains, hinders the development and upgrade of infrastructure systems and technical facilities necessary to support tourism. This limitation affects the accessibility and connectivity of tourist attractions within the region.

The BTT region's coastal plain terrain is shaped by the influence of the Truong Son mountain range to the west and the East Sea to the east. This coastal plain, geographically, runs along the foot of the Truong Son Dong mountains and follows an arc-like formation in the northwest-southeast direction. Notably, the west-eastward projections of the mountain ranges have fragmented the plain into smaller, isolated areas (Le, 2001; PCQBP, 2020b; PCQTP, 2022; PCTTHP, 2020b). Despite having a limited aesthetic appeal, the coastal plain holds immense historical and cultural significance. This area boasts numerous human treasures, including historical and cultural relics, flourishing craft villages and cultural villages, and folk festivals deeply rooted in agricultural traditions (e.g., boat racing festivals, ancestral craft ceremonies). Additionally, the coastal plain serves as a hub for developed urban centers alongside favorable infrastructure and technical resources, making it conducive to tourism development.

The BTT coastal zone borders the East Sea and is characterized by coastal dunes, alluvial beaches, lagoons, and terraces. The gently sloping coastal terrain has formed numerous beautiful, gently sloping beaches with fine white sand. These represent potential ecotourism resources. Notable beaches in the region include Nhat Le, Da Nhay, Cua Tung, Cua Viet, Thuan An, Canh Duong, and Lang Co. These beaches connect to the Tam Giang-Cau Hai lagoon, the largest in Southeast Asia with a water surface area of over 22,000

hectars. In addition, the coastline is dotted with beautiful and famous islands; Con Co Island stands out for its coral reefs that attract tourists.

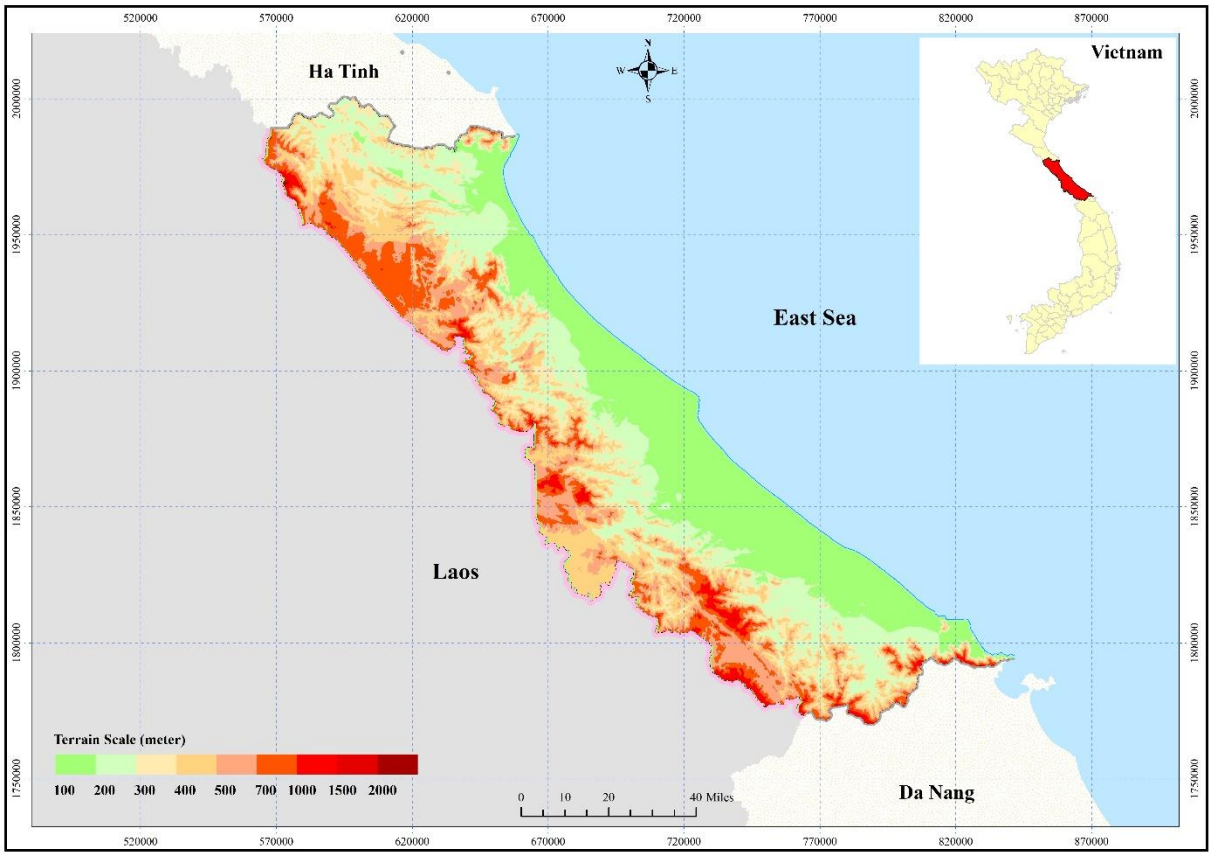

Figure 4.2. Topographic Map of the Binh-Tri-Thien Region

Climate

The BTT region exhibits a tropical humid monsoon climate, serving as a transitional zone between the climates of Northern and Southern Vietnam. The region is significantly affected by various natural disasters (Phan, 2019). It experiences high average annual air temperatures (23–25.2°C), increasing latitudinally from north to south. The maximum air temperature occurs in July (average 27.6–29.7°C) and the minimum in January (average 16.5–20°C). The annual temperature range is 9.4–12.7°C, decreasing from north to south and west to east (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). This thermal regime is generally favorable for tourism. However, May, June, and July are particularly hot due to the influence of the dry, hot westerly winds, presenting a risk to human health. While the summer climate is well-suited for ecotourism, resulting in peak visitation, the four cold winter months create a pronounced seasonal impact on tourism activities.

The BTT region experiences significant rainfall in Vietnam, ranging from 1,500–3,000 mm annually (PCQBP, 2020b; PCQTP, 2022; PCTTHP, 2020b). The rainy season spans from

August to January of the following year (6 months), with the most intense precipitation occurring from September to December (exceeding 300 mm/month) and ranging from 125 to 196 rainy days annually. October and November witness the heaviest rainfall (600–700 mm), contributing approximately 40–45% of the annual total (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). Rainfall distribution varies across the region, gradually decreasing from north to south and from east to west. Notably, the rainy season in the northern region coincides with the peak period of ecotourism activities (May–September), potentially impacting the operational timeframe for this tourism segment (Nguyen and Phan, 2022).

Hydrology

The BTT region is characterized by a network of rivers (Table 4.1). Notably, the region boasts a diverse range of mineral water sources recognized for their beneficial properties and potential use in treating certain ailments. These sources present valuable opportunities for tourism development. Among them, Bang Mineral Spring stands out for its exceptional potential due to its unique characteristic – being the only underground water source with a temperature exceeding 100°C (Tran et al., 2017).

Table 4.1. Main Rivers in the Binh-Tri-Thien Region

Rivers	Gianh	Nhat Le	Thach Han	Ben Hai	O Lau	Huong	Nong	Truoi	Bu Lu
Basin area (km^2)	4,680	2,647	2,660	809	900	2,830	99	149	118
Average river and stream density (km^2)	1.04	0.84	0.92	1.15	0.81	0.6	0.45	0.48	0.48

Source: author's work based on PCQTP, 2002; PCTTHP, 2020b

However, the region's rivers are generally short and have steep gradients. During the rainy season, this characteristic leads to rapid water flow down valleys, resulting in flash floods, soil erosion, and widespread inundation. Conversely, the dry season witnesses many rivers drying up, hindering waterway transportation and causing water scarcity for daily life, consequently significantly impacting tourism activities.

Biodiversity

The BTT region exhibits a rich and diverse biological system, attributed to the interplay of varied terrain, climatic conditions, and past tectonic and geological activity. The region's flora boasts over 2,500 higher plant species categorized into 944 genera and 209 families. These include: Pine Leaf phylum: 1 species, 1 genus, 1 family; Pylori phylum: 1 species, 1 genus, 1 family; Pinus phylum: 8 species, 2 genera, 2 families; Fern phylum: 100 species, 61 genera, 29 families; Gymnosperm phylum: 18 species, 8 genera, 6 families; Angiosperm phylum:

2,400 species, 879 genera, 176 families, dominated by the Dicot class (2,000 species, 690 genera, 145 families) and the Monocot class (400 species, 189 genera, 31 families) (Thai, 1978). Furthermore, the region harbors 51 rare plant species listed in the Vietnam Red Data Book (Tourism, 2007).

The BTT region prioritizes the preservation of this biodiversity through a network of protected areas, including 2 national parks and 9 nature reserves, landscape protection areas, and species conservation areas (Figure 4.3). These areas serve as vital resources for high-value ecotourism due to their exceptional biodiversity, encompassing critically endangered species like the Saola, giant muntjac, Sao pheasant, and douc langur (Tourism, 2007).

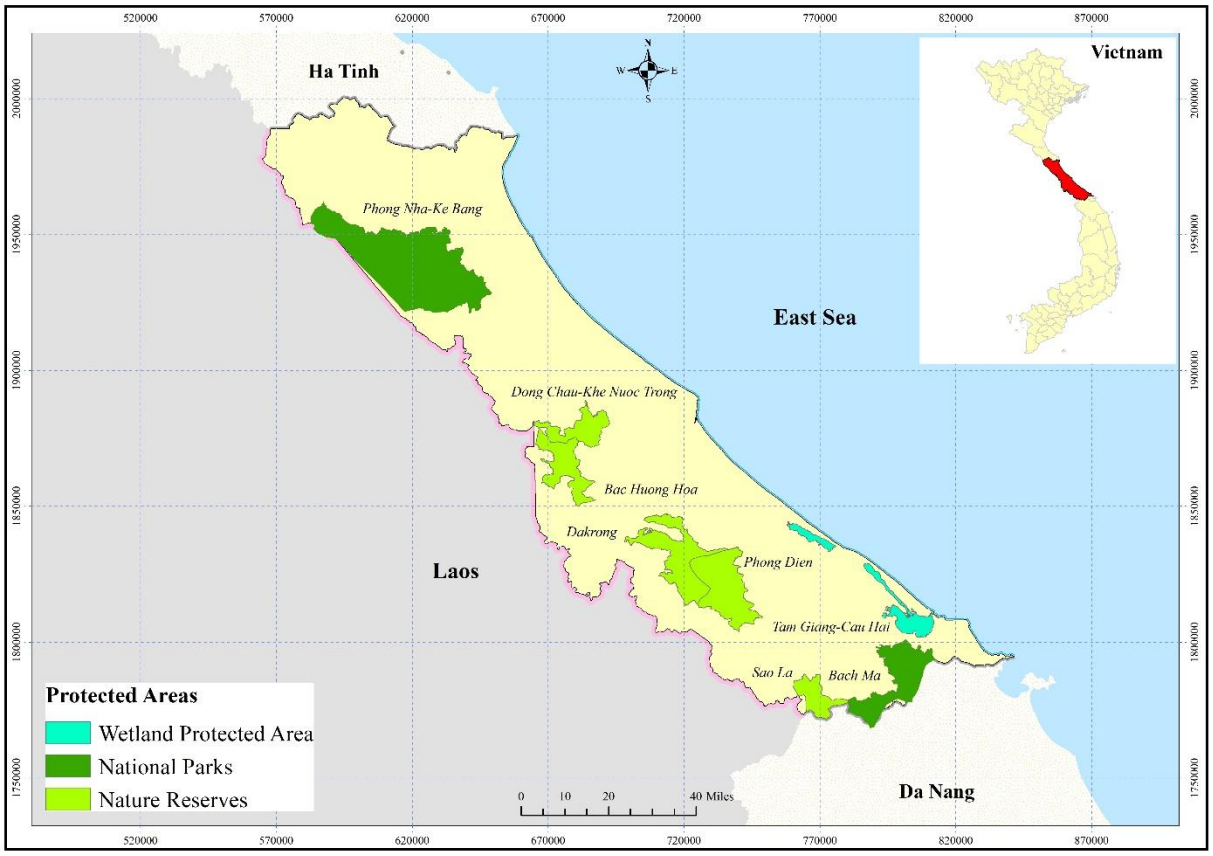

Figure 4.3. Protected Areas in the Binh-Tri-Thien Region

Cultural Resources

The BTT region possesses a wealth of culturally and historically significant sites, making it a major tourist destination. As of 2023, the region boasts 5,200 historical and cultural relics. Among these, 13 are designated as special national sites, 510 are recognized nationally, and 2002 hold provincial significance (MOCST, 2018a; Nguyen and Cheung, 2014b). Notably, the region contains 2 World Heritage Sites, such as Complex of Hue Monuments (1993) and Phong Nha-Ke Bang National Park (2003) (UNESCO, 2013). Hue City, with its unique

concentration of 5 heritage locations, is a particularly strong international tourism draw. These resources offer immense potential for distinctive tourism products and experiences within the BTT region. However, various factors have contributed to the degradation of certain cultural tourism resources, compromising their historical integrity, architectural value, and local cultural character. This poses a substantial challenge for conservation efforts and diminishes the overall appeal of these assets.

Festivals in the BTT region reflect both traditional Vietnamese cultural elements and regionally distinct characteristics. Folk festivals often feature lively activities such as boat racing, mat racing, fishing competitions, card hut festivals, and robin festivals. Unique events like royal festivals (Nam Giao and Ho Quyen sacrifice festivals, Hon Chen temple ceremony, Xa Tac sacrifice ceremony), the Mussel procession festival, and kite flying festivals are specific to the BTT area. Additionally, the biennial Hue Festival showcases a modern take on festive celebrations (Spangler, 2010). BTT region also boasts a significant number of traditional craft villages (342, comprising 16.9% of Vietnam's total) offering high-quality products appealing to tourists (Sakata, 2013). Notable examples include Ba Don conical hat making, Lap Thach cotton and fabric production, and Dong Dinh incense crafting. Hue City is particularly renowned for villages specializing in artistically sophisticated handicrafts like Thanh Thuy hats, Thanh Tien paper flowers, and Sinh village folk paintings. These distinctive souvenirs attract visitors seeking hands-on cultural experiences and insights.

Folk singing and dancing traditions in the region are renowned for their passionate and lyrical styles. Notably, Hue royal court music holds the status of an intangible cultural heritage of humanity (Nguyen and Cheung, 2014a). These distinctive traditions are leveraged for tourism purposes, adding depth and diversity to the region's offerings. In addition, the area boasts a rich culinary culture characterized by the creative use of diverse natural ingredients and skillful preparation techniques. Examples range from Quang Binh's noodle soup, showcasing rustic flavors, to Hue City's sour shrimp, mussel rice, sesame seed cakes, and elaborate royal cuisine (Hoang, 2023).

The BTT region is home to 25 ethnic groups representing several language families: the Viet-Muong group, the Mon-Khmer group, the Mong-Dao group, and the Thai-KaDai family (Imai et al., 2011). These groups, known for their industriousness, creativity, and distinctive cultural practices, form a multifaceted and vibrant regional culture. The BTT region's ethnic diversity fosters both cultural unity and a rich tapestry of human values that appeals to tourists.

Tourist Infrastructure

The BTT region, a vital transit hub between northern and southern Vietnam and Southeast Asian countries, features a network of vertical (north–south) and horizontal (east–west) routes. National Highway 1A and the Ho Chi Minh Road are the most crucial arteries. The north-south routes, particularly the national highway 1A, form the BTT's transportation backbone, running 620 km primarily along the coastal plain. This highway, along with the Thong Nhat railway, establishes a critical axis for regional movement. Horizontally, the region is traversed by national highways 10, 45, 47, 217, 7, 8, 12, and 49. These roads facilitate trade and economic exchange between the southern delta and western mountainous areas, with several routes integral to international trade and integration (Chinowsky et al., 2015). However, the region's frequent natural disasters lead to transportation system disruptions, particularly road degradation during the rainy season (Arouri et al., 2015). This limits access to tourist destinations situated off main highways or during inclement weather, hindering tourism development at these potentially attractive sites.

The BTT region possesses 650 km of the Thong Nhat railway, running parallel to National Highway 1A and passing through 65 major and secondary stations (Le and Tran, 2021). The integrated transportation network creates a comprehensive hub for regional and national movement of goods and passengers. Convenient regional access to this network presents an opportunity to attract tourists, provided improvements are made to the railway's service quality, infrastructure, and rolling stock. The region enjoys a robust electrical supply due to its position along the national 500kV, 220kV, and 110kV power lines (Nga Vu et al., 2019). Additionally, several large-scale power plants have been operational within the region for a significant period. Consequently, household electricity access exceeds 99%. In recent years, numerous power plants have been integrated into the national power grid, further supporting the region's socioeconomic and tourism development.

Freshwater resources in the region primarily originate from rivers and reservoirs, with groundwater playing a supplementary role. The current operational capacity of water treatment plants is insufficient to meet the domestic water demand of urban residents, which is standardized at 80–150 liters/person/day. As of 2024, 93.8% of households in BTT utilized hygienic water (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). Urban water supply networks are heterogeneous, with some sections being outdated and others newly constructed. However, their overall quality and capacity are inadequate to satisfy the clean water requirements of the urban population. Access to clean water sources in rural areas, particularly coastal communities, is even more challenging due to their heavy reliance on

groundwater resources. The BTT region's water supply faces numerous adversities, including drastic reductions in water levels during dry seasons and water pollution (Ngo et al., 2018). These issues not only hinder people's daily lives but also impede the socio-economic development of the entire region, including the tourism. Wastewater treatment in the BTT region also presents significant difficulties. Most provinces lack large-scale, centralized wastewater treatment facilities. Domestic wastewater from urban areas, artisan villages, and agricultural chemical use all contribute to the pollution of surface water sources in river basins. While recent efforts have seen strengthened wastewater treatment plants in some provinces and cities, and increased public awareness, the water quality continues to deteriorate significantly. This situation negatively impacts the region's socio-economic development, as well as the quality of the tourism environment and the tourism products offered to visitors.

Environmental Management

Following Vietnam's environmental management guidelines and policies, the Departments of Natural Resources and Environment in the provinces have issued numerous guiding and directive documents related to environmental protection and biodiversity. These documents address issues such as enhancing the collection and treatment of medical waste generated by the COVID-19 pandemic and residual plant protection chemicals. Managing solid waste collection and treatment within the provinces. Reporting on the status of waste source management and the current state of waste source databases in the provinces. Overall, the land, water, and air quality in the BTT region is generally favorable due to investments in environmental improvement projects, including upgrades and enhancements to the environmental landscape of certain rivers, lakes, and swamps (Nguyen et al., 2016). However, concerns remain regarding the region's limited environmental protection infrastructure (Hoang et al., 2019). Specifically, some provinces lack robust wastewater treatment systems for industrial zones, urban areas, and rural households. Additionally, inadequate wastewater and exhaust gas treatment at production facilities is a pressing issue.

The Formosa marine environmental incident of early April 2016 serves as a stark reminder of the importance of effective environmental management in the BTT region. The incident involved the discharge of waste by Formosa Metallurgical Company into the Central Sea, resulting in significant environmental pollution (Fan et al., 2022). The consequences of the incident were severe, causing mass die-offs of various marine life, including over 100 tons of fish, along the coastline. In addition, significant losses were incurred in shrimp farming (350

hectares), clam farming (6.7 hectares), crab farming (10 hectares), and fish cages (1,600 units). Furthermore, the incident impacted the livelihoods of over 510,000 people from 130,000 households across 730 villages and hamlets in 146 communes/wards/towns within 22 coastal districts of 4 central provinces. Beyond the immediate economic impact, the incident also led to the disruption of the marine food chain due to the disappearance of coral reefs and plankton systems (Hoang et al., 2020). This disruption has caused a decline in regional biodiversity and aquatic resources, potentially affecting the long-term sustainability of local livelihoods.

Marine environmental pollution incidents have significantly impacted tourism activities in the North Central provinces. Notably, there has been a substantial decline in tourist arrivals at popular beaches like Nhat Le, Cua Tung, and Thuan An compared to the same period in previous years. During the first half of 2016, while Vietnam received over 4.7 million international tourists and 32.4 million domestic tourists, the BTT region witnessed a sharp drop in tourists numbers. Notably, Quang Binh saw a decrease of over 20% in international tourists compared to the same period in 2015, with just over 1.3 million tourists (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). This challenging tourism situation has significantly affected the livelihoods of over 4,000 direct and 7,300 indirect workers. Similarly, Quang Tri experienced a decrease of 22% in visitor arrivals compared to the first half of 2015, with 679,825 tourists. This decline included a 20.5% reduction in domestic tourists (596,098) and a 26% decrease in international tourists (83,727). Furthermore, improper waste management in rural areas, the discharge of untreated wastewater from artisanal villages, industrial clusters, and agricultural practices (livestock farming, poultry processing, and industrial shrimp farming) have negatively impacted the environmental quality and tourism activities in the BTT region (Duc Luong et al., 2013).

Population and Labor Resources

The BTT region is characterized by a large population and abundant labor resources. It boasts a long history of development and a tradition of scholarship, having fostered numerous revered heroes and renowned cultural Figs. The region's demographics and diverse ethnicities contribute significantly to its tourism development.

In 2024, the BTT region had a total population of 2.6 million, distributed as follows: Hue City with 1.12 million (43.4% of the region's population), Quang Binh province with 0.9 million (33.1%), and Quang Tri province with 0.6 million (23.5%). The average population density for the entire region is 151 people/km², with Hue City having the highest density at 228 people/km² (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). However, the region's

population density remains lower than the national average (Table 4.2). This disparity in population size significantly impacts the supply of both intra-regional and intra-provincial tourists within these localities. The eastern coastal plain and areas along highway 1A concentrate approximately 70% of the region's population, while the western region, encompassing 60% of the total land area, houses only 30% of the population. This uneven distribution has a substantial influence on the territorial division of labor and the overall economic growth of the BTT region. Consequently, tourist destinations in the sparsely populated highlands and mountainous areas may face labor shortages due to the high labor demands associated with the tourism.

Table 4.2. Population of the Binh-Tri-Thien Region in 2023

	Area (km^2)	**Population** (people)	**Density** (people/km^2)
BTT region	**17,647**	**2,656,425**	**151**
Quang Binh	7,998	895,430	112
Quang Tri	4,701	632,375	135
Hue City	4,947	1,128,620	228
Vietnam	**331,345**	**101,300,081**	**306**

Source: author's work based on PCTTHP, 2024; QBSD, 2024; QTSD, 2024

The BTT region has a significant workforce exceeding 1.3 million individuals as of 2023. Hue City leads the region with the highest number of workers (598,000), followed by Quang Binh province (434,000) and Quang Tri province (334,000) (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). This substantial labor force presents potential for human resource development in various economic sectors, including tourism. A large workforce can provide sufficient personnel for diverse tourism services, ranging from tour guides and receptionists to facility maintenance and operational staff (Suwarto et al., 2024). However, while the BTT region possesses a sizeable workforce, its quality presents a concern. The region exhibits relatively low educational attainment and technical expertise among its workers. The illiteracy rate ranges from 1.2% to 1.5% of the total workforce. Additionally, the proportion of workers aged 15 and above employed in formally trained economic sectors falls below the national average (28%). Within the region, Hue City holds the highest percentage of trained workers (29.8%), followed by Quang Tri province (27%) and Quang Binh province (26%) (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). The quality of the BTT region's workforce has the potential to directly impact the quality of tourism services offered. Lower levels of education and technical expertise can lead to the delivery of subpar services or the failure to meet tourist expectations, particularly those of international tourists.

4.1.2. External Factors

Climate change and the COVID-19 pandemic have posed significant challenges to the Binh-Tri-Thien region's tourism. These global issues impact travel behavior, tourism demand, and the overall resilience of the sector, highlighting the need for adaptive and sustainable strategies.

Climate Change

Located at the interface between the distinct natural geographic regions of the Northern and Southern Vietnam, the Binh-Tri-Thien (BTT) region exhibits heightened sensitivity and vulnerability to climate change. This section focuses on analyzing the types of natural disasters significantly impacting tourism activities. Natural disasters and extreme weather events affecting the BTT region are demonstrably shifting towards increased variability in intensity, timing, and scope of impact.

During the period 1961–2022, a total of 104 typhoons made landfall or directly impacted the coast of Vietnam, averaging 1.5 typhoons per year (Takagi, 2019). Severe tropical storm activity exhibits a seasonal pattern, with the earliest storm season commencing in May and persisting through November. The majority of tropical storm (over 65%) concentrate in September and October (Nguyen et al., 2019). The highest storm frequency occurs in the coastal regions of the Quang Binh and Quang Tri (0.3 typhoons/year), while the lowest frequency is observed in the coastal area of Hue City (0.1 typhoons/year). Quang Binh province experienced a surge in storm and tropical depression activity during 1960, 1961, 1978, and 1983 (Hien et al., 2022). The most severe impacts arise from typhoons generating tornadoes and accompanying prolonged heavy rainfall (2–5 days), leading to significant flooding. The nature of storms and tropical depressions in Quang Tri exhibits considerable variability across individual storms and landing times. While some years experience no typhoons, others may witness multiple occurrences (e.g., 2–3 typhoons in 1964 and 1996). On average, approximately 1.2–1.3 typhoons occur annually. In the coastal region of the Quang Tri province, approximately 78% of landfalling typhoons and tropical depressions from the East Sea contribute to heavy rainfall and river flooding, impacting coastal communes and valley areas along the tributaries of the Thach Han River (H. Nguyen et al., 2022). Statistical results suggest a slight decrease in the overall number of typhoons and tropical depressions directly affecting the Quang Tri province, although the reduction is not statistically significant. Hue City experiences an average of 0.6 typhoons per year. Between 1961 and 2022, 35 typhoons and tropical depressions impacted Hue City, with four categorized as

strong or very strong storms (representing 13.8% of the total). The average tropical storm wind speed in the Hue City reaches 76 km/h (equivalent to Beaufort scale level 9), with the maximum wind speed reaching 137 km/h (Nguyen et al., 2022).

Due to the short and steep characteristics of rivers in the BTT region, floods arrive rapidly after upstream rainfall events, but recession is equally swift. Unlike the river system in Northern Vietnam, the BTT region lacks a dike system to mitigate floods. Additionally, the absence of large-capacity reservoirs to regulate water flow results in unimpeded downstream flooding. Consequently, residential areas located adjacent to the riverbanks experience severe flooding during periods of intense upstream rainfall. Furthermore, the frequency and seasonality of floods have also shifted (Thanh Son et al., 2024). Historically, floods were confined to the August – October period, while current trends indicate occurrences throughout April – December, as evidenced by the April 2003 flood event (Le et al., 2023). Unlike storms and floods, droughts often persist for extended periods, causing gradual but significant losses. The El Niño years of 1998, 2005, 2007, and 2008 witnessed severe, region-wide droughts in the BTT region. In 1998, over 2 million people faced domestic water shortages, with 140,000 ha (nearly 20% of cultivated land) affected. Similar drought impacts (10% of cultivated land) were observed in 2003 and 2005 (Thanh Son et al., 2024). Notably, 2008 experienced the most extensive drought area. Within the region, the Quang Binh province generally experiences less drought compared to other areas.

Climate change is expected to increase the intensity and frequency of storms, floods, and other natural disasters such as flash floods, landslides, riverbank and coastal erosion, and wildfires (Nguyen and Hens, 2019). These events will negatively impact tourism by damaging infrastructure, degrading the landscape, and consequently reducing visitor numbers. This impact will affect various tourism sectors, including resorts, ecotourism, marine tourism, and adventure tourism. Rising sea levels pose a significant threat to coastal areas in the central provinces, including tourist facilities, if not addressed promptly (Tran et al., 2021). Some seaside motels face the risk of landslide damage, while beaches could experience significant erosion. Deep flooding could render ecotours in lagoons impractical. In additiona, specific ecotourism destinations like Ru Cha, Bu Lu estuary, and areas along the O Lau river might disappear due to rising sea levels. Rising temperatures cause a decrease in biodiversity, leading some endemic species at ecotourism locations to likely disappear and coral reefs to become degraded, consequently reducing their attractiveness (Schmidt-Thome et al., 2015). In addition, climate change contributes to the deterioration of the tourism environment and an increase in seawater pollution at beaches. In the long term, climate change will likely lead to

epidemics, poverty, food insecurity, political instability, and a decrease in tourist income, which is likely to further reduce tourist numbers.

The COVID-19 Pandemic

Prior to the large-scale outbreak of the COVID-19 pandemic, tourism activities in the BTT region maintained positive results. However, the rapid and unforeseen global and national escalation of the pandemic significantly impacted Vietnam's tourism (as shown in Subchapter 3.2.2), including the BTT region. The COVID-19 pandemic had a clear and significant impact on tourism in the BTT region, leading to a sharp drop in both visitor numbers and revenue (Bui and Pal, 2022). In 2019, the region attracted over 11 million tourists and earned more than VND 12,000 billion (equivalent of approximately USD 461,449[3]). However, after the pandemic began, tourism declined rapidly. By 2021, the number of visitors had dropped to just 1.7 million (a decrease of 85% compared to 2019), while revenue fell to VND 3,980 billion (USD 153,048), as shown in Figure 4.4. Furthermore, the pandemic's repercussions extended beyond tourist numbers and revenue, leading to the closure or extended suspension of numerous tourism businesses. Consequently, many workers in this sector experienced job losses, voluntary resignations, or transitions to other occupations.

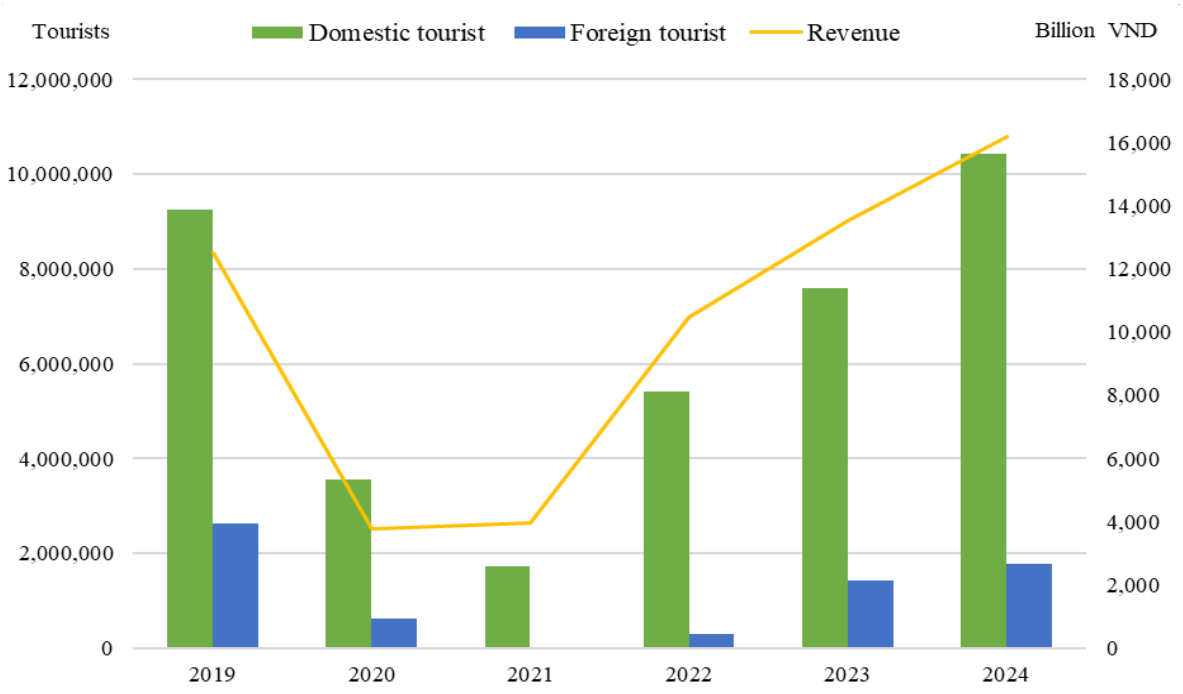

Figure 4.4. Tourist Arrivals and Tourism Revenue in the Binh-Tri-Thien Region (2019-2024)

Source: author's work based on PCTTHP, 2024; QBSD, 2024; QTSD, 2024

[3] 1 USD = 25,000 VND (Vietnamdongs)

4.2. Tourism in the Binh-Tri-Thien Region: Statistical Outlook

Building upon the recognition of tourism as a crucial economic sector since 2007, as discussed in Chapter 3, Vietnamese policy and development strategies reflect this understanding. Notably, in 2007, the state management agency for tourism in the provinces was changed, from merging the Department of Physical Education and Sports, the Department of Tourism as well as the Department of Culture and Information into the Department of Culture, Sports, and Tourism. This change facilitated the collection and analysis of tourism data using more scientific methods, thereby contributing significantly to the assessment of the current state of the tourism. Therefore, this section will focus on using data collected in the period 2007–2024 to present the current development status of tourism in the BTT region.

4.2.1. Tourist Arrivals

During the period 2007–2024, the Binh-Tri-Thien (BTT) region received over 110 million tourists, with domestic tourists comprising 81% of the total (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). Overall, tourist arrivals in the BTT exhibited fluctuations between 2007 and 2024, reflecting an increase from 2.6 million in 2007 to 11.9 million in 2019, followed by a significant decline due to the COVID-19 pandemic (Figure 4.5). These observations highlight the significant potential of the BTT tourism, necessitating the formulation of appropriate development strategies to attract tourists, particularly international tourists, in the post-COVID-19 era (An and Hung, 2025).

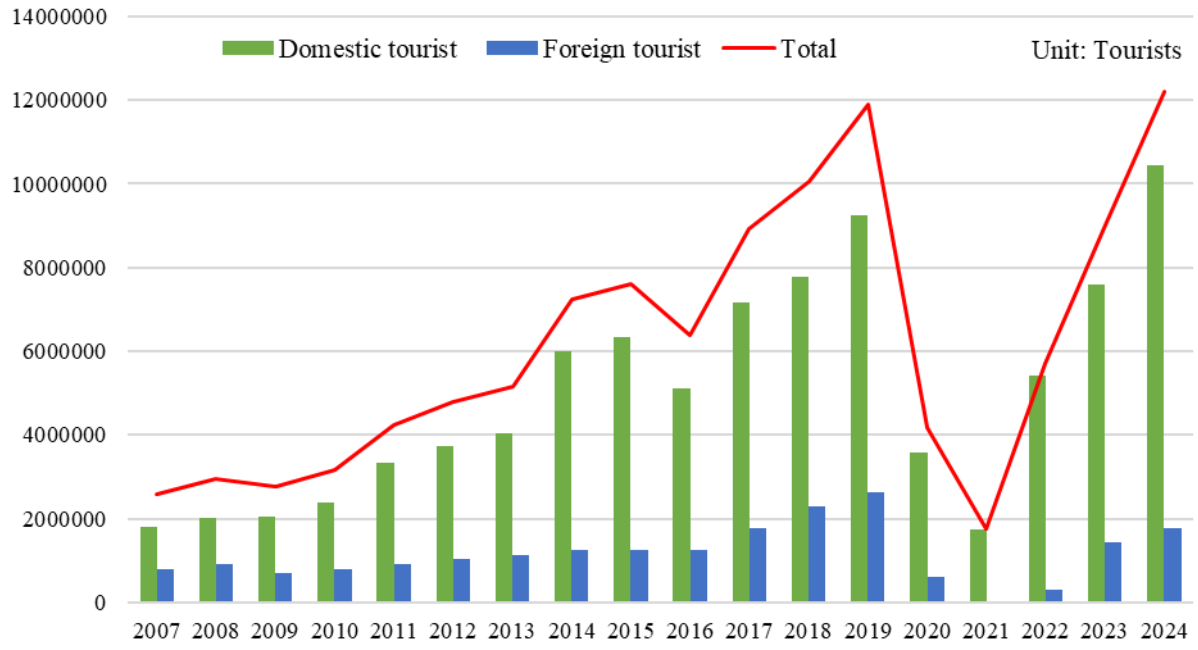

Figure 4.5. Tourist Arrivals in the Binh- Tri-Thien Region (2007-2022)

Source: author's work based on PCTTHP, 2024; QBSD, 2024; QTSD, 2024

International Tourists

In the period 2007–2024, the BTT region welcomed a total of more than 20 million international tourists, with an average growth rate of 15.5% per year. In 2007, the area only attracted 782 thousand tourists. By 2024, it had welcomed more than 1.7 million tourists, i.e. 2.2 times more. This is the result of exploiting the advantages of natural resources, unique landscape values such as the Phong Nha-Ke Bang National Park and the unique cultural values of tangible and intangible cultural heritages. Objects recognized by UNESCO: the Hue Monuments Complex, Hue Royal Court Music. However, the growth in the number of visitors to the BTT in each period is not uniform. The reason is that political, economic and social fluctuations in the world have directly affected the travel needs of international tourists. The global financial crisis has been going on since 2008; its effects had a strong impact on the Vietnamese economy in later years. Therefore, after 2008, international tourists to the BTT region increased slowly (Figure 4.6). Additionally, fluctuations related to the East Sea issue – particularly the incident in which China placed oil rig 981 in Vietnam's Exclusive Economic Zone – also affected international tourist arrivals (Leung, 2010).

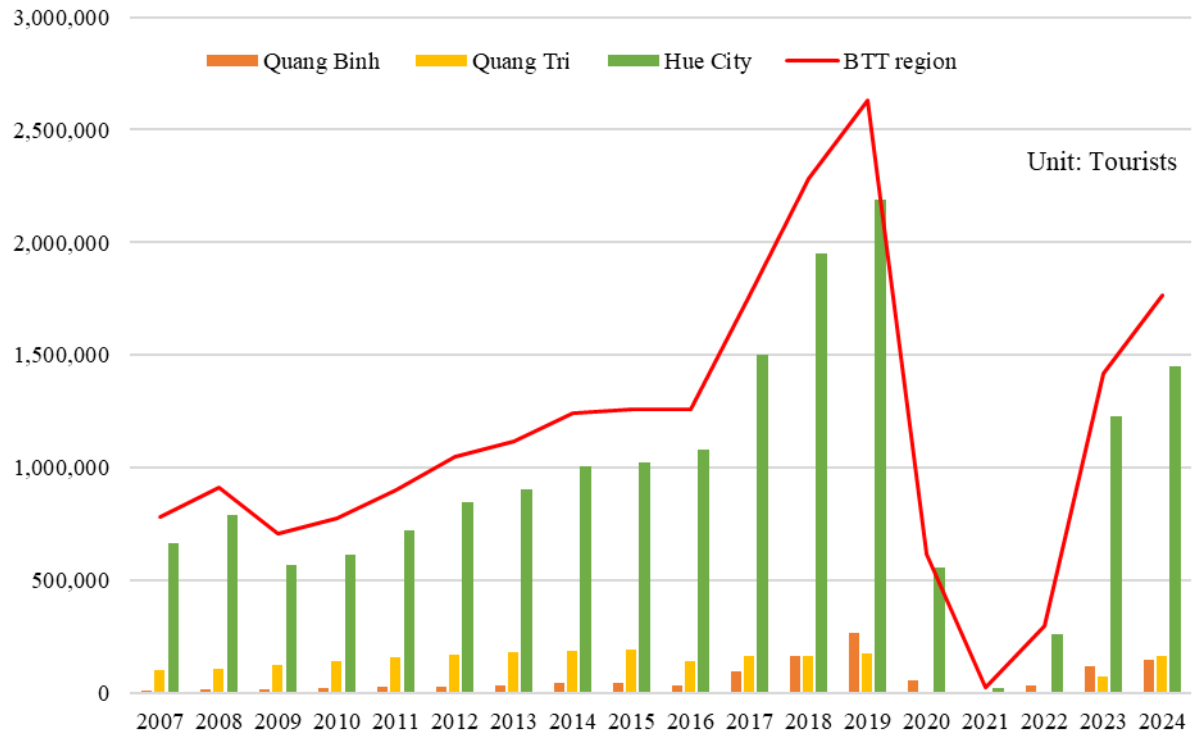

Figure 4.6. International Tourists in the Binh-Tri-Thien Region (2007-2022)

Source: author's work based on PCTTHP, 2024; QBSD, 2024; QTSD, 2024

Among the provinces of the BTT region, Hue City consistently attracts the highest number of international tourists, consistently comprising roughly 83% of the region's total

international tourist count. Data supports this trend: in 2007, Hue City received 667,000 tourists (78.6% of the region's total), and in 2024, those Figs rose to 1.45 million (83.1%). This positions the province within Vietnam's top 10 destinations for international tourism (Suntikul et al., 2016). Hue City's appeal stems from its promotion of tangible and intangible cultural heritage, its recognition as a festival city (2008) and an ASEAN cultural city (T. H. H. Nguyen and Cheung, 2014a). Quang Binh occupies the second position in international tourist arrivals within the BTT region, leveraging its unique cave systems and ecotourism assets. Its international visitor count increased 10-fold between 2007 and 2023, reaching 146,000 in 2024. Quang Tri province, with 168,000 international tourists in 2024, demonstrates growth driven by marine tourism and its Demilitarized Zone (PCTTHP, 2024; QBSD, 2024; QTSD, 2024).

The international tourist market to the BTT region experienced substantial shifts between 2007 and 2024. In 2007, Western European countries (United Kingdoms, France, Germany) held the largest share of visitors (34.6%). Southeast Asian countries represented the second-largest market (23.75%), followed by Northeast Asia (10.6%), Australia (10.1%), North America (10.09%), Eastern Europe (5.8%), and Middle Eastern countries along with other nationalities (4.95%). By 2024, the Southeast Asian market (primarily Thailand and Laos) occupied the leading position. Factors contributing to this surge include regional policies permitting caravan tourism, the development of the East–West Economic Corridor, and the formation of the ASEAN economic community (Pomfret, 2013). Additionally, relaxed immigration regulations within the ASEAN bloc and the 2016 allowance of cross-border self-driving vehicles facilitated travel. The Northeast Asian market ranked second, with South Korean tourists dominating international arrivals to Hue City in 2024 (19.9%). Geopolitical tensions in the East Sea influenced a decline in Chinese tourists to Vietnam (Ross, 2021), though China remains a significant source market. Traditional markets in Western Europe and North America demonstrated steady growth, maintaining a substantial share of the BTT region's tourist arrivals.

Domestic Tourists

Vietnam witnessed significant economic progress in the early years of the 21st century, leading to an improved quality of life for its citizens. Consequently, domestic tourism experienced a rapid rise. The BTT region attracted over 89 million domestic tourists between 2007 and 2024. This trend is evident in the visitor numbers, which grew from 1.8 million in 2007 to 10.4 million in 2024 (Figure 4.7). However, the growth rate displayed temporal fluctuations throughout this period. Initially, the number of visitors exhibited continuous

growth. However, this trend slowed considerably and became volatile in 2011, 2012, and 2013, followed by a surge in 2015. This pattern can be attributed to the series of major storms that impacted the BTT region between 2010 and 2013 (October 2010, October 2011, and late 2013). These storms resulted in unprecedented floods, significant casualties, and infrastructural damage, consequently hindering service capacity and visitor reception capabilities (Nguyen and Hens, 2019; Schmidt-Thome et al., 2015). Notably, the year 2015 witnessed the highest growth rate in tourist arrivals during the first 15 years of the 21st century, reaching 24.2%. This surge can be linked to post-storm recovery efforts and the implementation of effective tourism policies. However, the 2016 marine environmental incident (Formosa) in central Vietnam negatively impacted tourism, leading to a decline in domestic visitors (5.1 million). The number of domestic tourists recovered and even peaked in 2024.

Domestic tourists exhibited a decreasing length of stay between 2007 and 2024. The average stay duration for domestic tourists in 2007 was 1.44 days. This figure had declined to 1.34 days per visitor by 2019, encompassing both tour participants and independent travelers. Several contributing factors can be identified for this observed decline. Firstly, a significant proportion of visitors originate from the northern region, specifically the capital city Hanoi. This proximity, coupled with the development of personal vehicles and improved road infrastructure, facilitates weekend travel for a large segment of the visitor base. Secondly, subjective factors, such as a lack of diverse and engaging entertainment and recreational activities at key tourist destinations within the region, limit the ability to extend stays.

From 2007 to 2013, Hue City ranked first in the BTT region in terms of domestic tourist arrivals. However, Quang Binh province surpassed Hue City after 2013, becoming the region's leader in domestic tourism. The significant growth of Quang Binh's domestic tourism can be attributed to several factors. Firstly, while Hue City primarily focuses on cultural and historical tourism, Quang Binh diversifies and enriches its tourism offerings by including adventure tourism, ecotourism, and cultural tourism. This wider range of options and experiences attracts a broader visitor demographic. Furthermore, significant infrastructure investments, including the Ho Chi Minh – Hanoi Expressway, which shortens travel time, and the upgrade of Dong Hoi Airport, which increased flight availability, have contributed to the region's growth. Additionally, investments in intra-provincial transportation have enhanced accessibility to tourist destinations. Notably, Quang Binh's implementation of effective tourism promotion strategies, such as the live broadcast from Son Doong cave (the world's largest cave) by the American channel ABC, has provided a significant boost to attract domestic tourists to the region (Limbert et al., 2020).

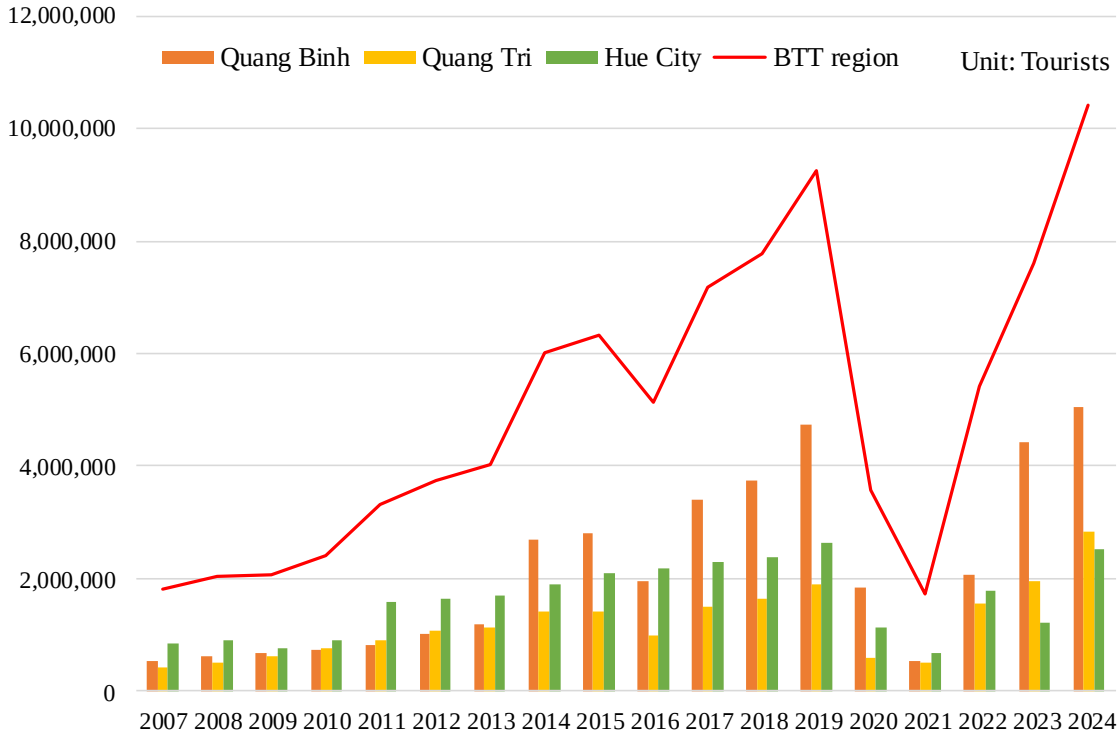

Figure 4.7. Domestic Tourists in the Binh-Tri-Thien Region (2007-2024)

Source: author's work based on PCTTHP, 2024; QBSD, 2024; QTSD, 2024

4.2.2. Revenue

From 2007 to 2024, the Binh-Tri-Thien (BTT) region recorded a total tourism revenue of over 117 trillion VND (USD 4.68 billion), with noticeable fluctuations over time. In 2007, tourism revenue was 1,502 billion VND (USD 60.1 million). By 2024, it had increased to 16,180 billion VND (USD 647.2 million) (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). While objective fluctuations, such as the global economic crisis of 2008 and the Formosa sea incident of 2016, temporarily impacted tourist growth and revenue, the region's natural beauty and provincial development efforts contributed to sustained growth in total tourism revenue.

Prior to 2017, Hue City held the leading position in total regional tourism revenue, accounting for 50% in 2007 and 61% in 2016. However, the marked rise in Quang Binh province's tourism sector since 2017 has propelled it to the number one position, with a share of 42% in 2017 and 46% in 2024. This aligns with earlier observations of Quang Binh's significant growth in domestic visitor arrivals since 2014 (Figure 4.8). Despite Quang Binh's recent success, the total tourism revenue of the BTT region remains relatively modest, exhibiting slow and uneven growth. Notably, BTT's tourist profile is characterized by individuals with average disposable income. Additionally, a significant portion of tourist

arrivals comprise business travelers, combined with tourism products offered by some provinces, which contributes to a shorter average length of stay, ultimately impacting revenue generation. Furthermore, tourism service prices in the BTT, encompassing accommodation, meals, and other offerings, are generally lower compared to other regions (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). A significant portion of international visitors to the BTT participate in transit or connecting tours, while domestic tourists primarily engage in weekend getaways or short vacations. These factors collectively contribute to the limitations observed in the BTT region's overall tourism revenue.

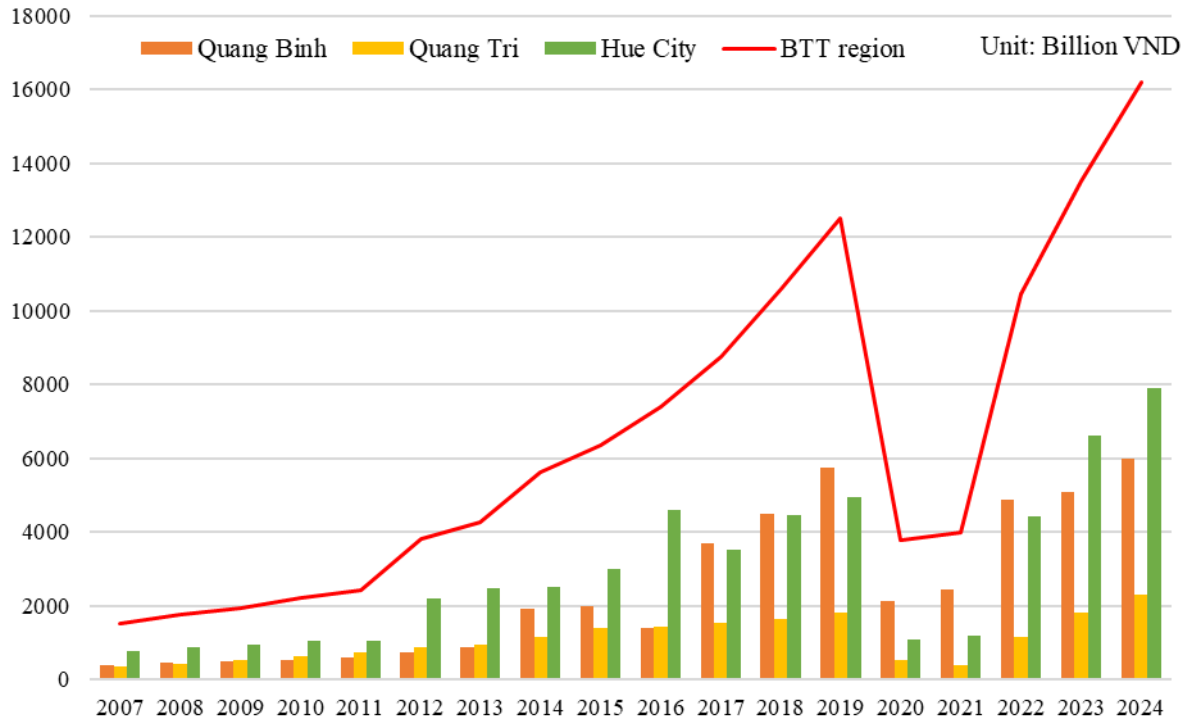

Figure 4.8. Tourism Revenue of the Binh-Tri-Thien Region (2007-2024)

Source: author's work based on PCTTHP, 2024; QBSD, 2024; QTSD, 2024

In 2024, accommodation, food, and travel contributed over 75.4% of the total tourism revenue in the BTT region (Table 4.3), exceeding the national average of Vietnam (65.5%). However, compared to economically developed regions like Hanoi and Ho Chi Minh City, the BTT region exhibits a significantly lower share of revenue from the accommodation sector. While the aforementioned regions boast accommodation revenue exceeding 60% with an upward trend attributed to the notable improvement in the quality of their accommodation facilities, the BTT region demonstrates a contrary trend (PCTTHP, 2024; QBSD, 2024; QTSD, 2024). This decline suggests not only a lack of improvement in the quality of its accommodation offerings but also a tourist profile dominated by short-term vacationers and visitors. In addition, the BTT region lags behind the national average in revenue generated by

travel and sightseeing activities, with only 19.6% compared to the national figure of 32.2%. This disparity can be attributed to the region's proximity to tourist origins and the prevalence of personal vehicles as the primary mode of transportation. Additionally, the limited offerings in entertainment services contribute to the relatively modest income generated from sightseeing activities.

Table 4.3. Revenue Structure of the Binh-Tri-Thien Region in 2023

Revenue structure	Vietnam	Binh-Tri-Thien Region
Average spending per day (1,000 VND)	1,132	802
Structure (%)	100	100
Accommodation	15.5	29.9
Food and beverage	25.9	30.1
Travel	24.1	15.4
Sightseeing	8.1	4.2
Shopping	16.6	11.1
Medical	0.6	0.5
Other	9.2	8.8

Source*:* author's work based on PCTTHP, 2024; QBSD, 2024; QTSD, 2024

4.2.3. Tourist Infrastructure

During the period 2007–2024, the tourist accommodation system in Binh-Tri-Thien (BTT) region underwent significant development in both quantity and quality. In 2007, the region possessed 301 establishments offering a total of 3,250 rooms. By 2024, these Figs had increased to 1,485 establishments (a 4.9–fold increase) and 16,905 rooms (a 5.1–fold increase) (MOCST, 2024) (Table 4.4). Notably, the growth rate of room capacity outpaced the growth in the number of establishments, suggesting an increase in larger-scale facilities during this period. Concomitant with the quantitative expansion, the quality of BTT's tourist accommodation system also improved. In 2007, only 51 establishments (15.6% of the total) met 1- to 5-star standards. By 2024, this number had risen to 277 establishments, representing 19.4% of the total (MOCST, 2024). This enhancement in accommodation quality serves as a crucial indicator of the tourism's development, particularly significant for attracting international tourists and expanding market share.

Comparing provinces in the region, Hue City leads with over 900 accommodation establishments and 8,477 rooms. Of these, 108 establishments (12%) are rated between 1 and 5 stars. Quang Binh province ranks second with 371 establishments and 5,200 rooms, with 63 establishments (27.6%) rated between 1 and 5 stars. Finally, Quang Tri province has 215 establishments and 3,228 rooms, with 102 establishments (29.3%) rated between 1 and 5 stars

(MOCST, 2024). These findings accurately portray the current landscape and highlight the disparities in tourism development among the BTT region.

Table 4.4. Accommodation Facilities in the Binh-Tri-Thien Region in 2024

	Quang Binh	Quang Tri	Hue City	Binh-Tri-Thien Region
I. Total	**371**	**215**	**903**	**1,489**
5 stars	3	0	11	14
4 stars	8	2	12	22
3 stars	11	11	8	30
2 stars	33	10	31	74
1 star	48	40	49	137
Others	268	152	792	1,212
II. Rooms	**5,200**	**3,228**	**8,477**	**16,905**
Beds	10,200	5,565	13,490	29,255

Source: author's work based on MOCST, 2024

In addition to the accommodation system, dining establishments in the BTT region are developing rapidly. Hotels and motels feature cafeterias, restaurants, and bars, serving diverse dishes of high quality and hygiene to both on-site guests and visitors. A chain of luxury restaurants catering to tourists is concentrated in Hue City, including establishments such as Le Parfum, Ancient Hue, Junrei Restaurant, Ben Xuan Garden House Theater, Song Huong floating restaurant, and Tinh Gia Vien restaurant. However, the BTT region still has limited entertainment and sports facilities (MOCST, 2018b). Prior to 2013, there were few amusement and entertainment areas to meet the needs of tourists and local residents, often resulting in shorter stays and lower business efficiency. Since 2013, several sports and entertainment areas have been established to serve tourists, such as the Chay Lap Riverside underground amusement park in Bo Trach and the Suoi Da amusement park (Quang Binh), along with the Laguna Lang Co Golf Course (Hue City). Additionally, ongoing projects by corporations like FLC, Vingroup, and Sungroup promise to further diversify entertainment and recreation options in the coming years, enhancing the attractiveness of tourist destinations in the region.

4.2.4. Workforce

The rapid pace of tourism development has attracted workers to participate in this field. In 2022, the BTT region has 11,300 direct workers in the tourism sector (PCTTHP, 2024; QBSD, 2024; QTSD, 2024) (Figure 4.9). Additionally, the number of workers indirectly participating in tourism activities is between two and three times higher than direct workers.

This demonstrates the contribution of the tourism to job creation. However, the tourism does not constitute a major component of the economic labor structure of this region, as it only accounts for 1.4% of the total number of workers in the BTT region (Phan, 2019). This potentially reflects the preferences of workers and the development of other economic sectors such as agriculture, industry, or other services. While the low number of workers in the tourism presents challenges in attracting investment and developing this industry, it can also be seen as an opportunity to focus on improving the quality of human resources in the tourism sector, from skills training to improving working conditions and service standards.

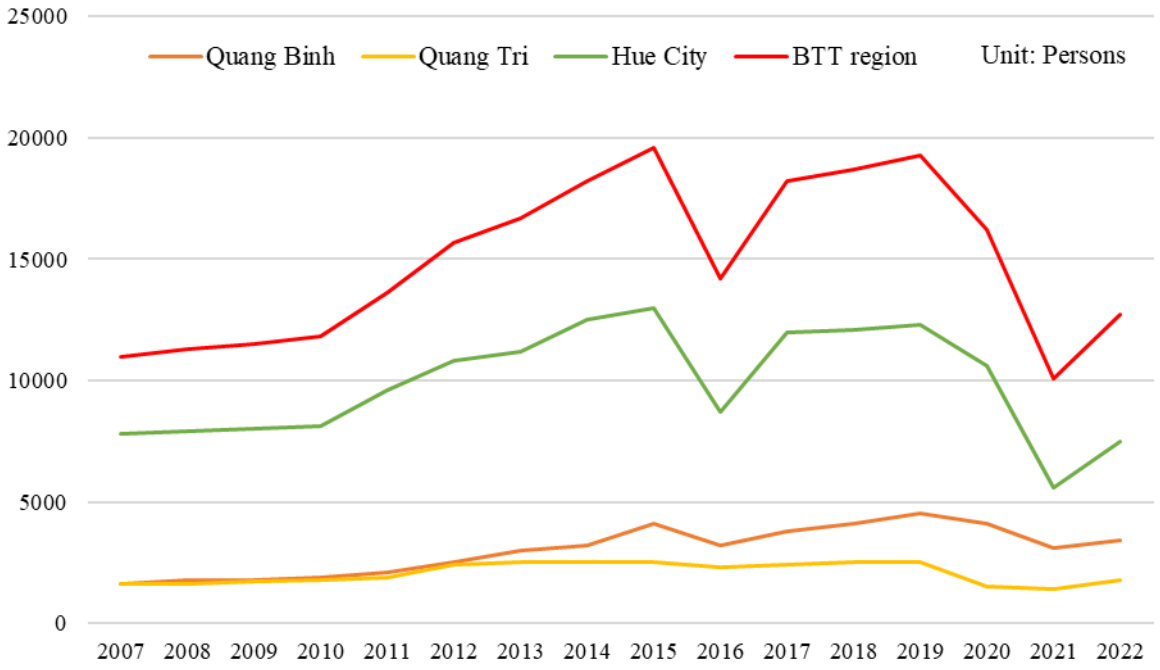

Figure 4.9. Direct Workforce in the Tourism Sector in the Binh-Tri-Thien Region

Source: author's work based on PCTTHP, 2024; QBSD, 2024; QTSD, 2024

While the quantity of tourism human resources has seen significant growth, their quality has not progressed commensurately. Professional qualifications, skills, and education often fall short of meeting market demands. The proportion of untrained workers is projected to reach 19.9% by 2022. This disparity can be attributed to inadequate investment in tourism human resource training. In the BTT region, only 11 establishments offer tourism training programs at various levels, with only one specialized institution – Hue Tourism Vocational College (Table 3.5). The remaining majority are university and college faculties. Furthermore, the existing curriculum remains heavily focused on theory with limited practical application. Physical and technical facilities lack sufficient investment and exhibit uneven distribution. Many institutions lack or have insufficient practice rooms for specialized subjects.

Additionally, limited collaboration exists between educational institutions and tourism businesses. These factors contribute to graduates lacking essential skills, necessitating additional training by employers (Le, 2020). Consequently, with the rapid increase in both quantity and quality of tourism labor demand, training facilities in the BTT region are unlikely to address the impending shortage, particularly of high-quality human resources.

Table 4.5. Training Facilities for Tourism in the Binh-Tri-Thien Region

Provinces	Training institution
Quang Binh	Quang Binh University
	Quang Binh Pedagogical College
	Employment Service Center – Quang Binh Labor Federation
Quang Tri	Vocational Intermediate School No. 9
	Mai Linh Intermediate School
Hue City	Faculty of Tourism – Hue University
	Phu Xuan University
	Hue Tourism Vocational College
	Hue Industrial College
	Hue City Education College
	Duy Tan Intermediate School of Economics and Tourism

Summary of Chapter 4

Chapter 4 focuses on analyzing the factors influencing tourism development in the Binh-Tri-Thien (BTT) region while providing an overview of the current state of tourism through key statistical data with adequate qualitative comments. These insights not only clarify the region's potential and challenges but also lay the groundwork for proposing sustainable development solutions in subsequent chapters.

The analysis of internal and external factors highlights that the BTT region possesses significant advantages in terms of natural and cultural resources. Geographically, the region is situated in central Vietnam, serving as a vital link between the North and South while also being close to Southeast Asian countries, creating favorable conditions for attracting both international and domestic tourists. However, the harsh climate and extreme weather events such as storms and floods pose considerable challenges for tourism activities. The BTT region is also notable for its rich biodiversity and cultural resources. National parks such as Phong Nha-Ke Bang and Bach Ma, along with wetland areas, play a crucial role in promoting ecotourism. Moreover, the region boasts a rich history and culture with numerous tangible and intangible heritage sites, traditional festivals, and craft villages, forming a solid foundation for developing cultural and community-based tourism. Despite these strengths, the region faces

challenges related to underdeveloped tourism infrastructure, including transportation, accommodations, and services, as well as a workforce that does not yet meet the requirements for sustainable development.

In addition to internal factors, external factors such as climate change and the COVID-19 pandemic significantly impact the tourism sector. Tourism activities in the region remain under pressure from resource degradation and environmental pollution, necessitating effective management policies and sustainable resource protection measures. The COVID-19 pandemic causes a sharp decline in tourist arrivals, revenue, and employment in the sector. However, it also creates opportunities for the tourism to restructure and shift towards more sustainable models, such as green and safe tourism.

Statistical data on tourist arrivals, revenue, infrastructure, and workforce reflect the current state of BTT's tourism sector. Both international and domestic tourist numbers grow significantly over the past decade, driven by promotional efforts and the diversification of tourism products. Tourism revenue also shows an upward trend, underscoring the sector's importance to the local economy. Nevertheless, the lack of synchronized infrastructure and the need to improve workforce quality remain pressing issues that require attention.

The content presented in Chapter 4 is crucial for assessing the potential and challenges of the tourism in the BTT region. By analyzing influencing factors and synthesizing practical data, this chapter emphasizes the interrelationship between resource potential, environmental management, and socio-economic development trends. The findings from this chapter serve as a foundation for further in-depth research on ecotourism in the BTT region in the subsequent chapters.

Chapter 5. Ecotourism in the Binh-Tri-Thien Region: Organizational and Statistical Overlook

Building on the overview of the general tourism situation in the Binh-Tri-Thien region presented in Chapter 4, this chapter delves into diagnosing the current state of ecotourism in the area. It begins with an examination of the regulatory framework governing ecotourism development and the organizational structure supporting ecotourism activities. Next, it explores the various forms of organization in ecotourism business operations and concludes with a statistical analysis of ecotourism performance in the region.

5.1. Regulations on Ecotourism Development

Ecotourism activities within the Binh-Tri-Thien (BTT) region are subject to a regulatory framework established by relevant sectoral legislation. This framework encompasses primary laws such as the Law on Forestry, the Law on Biodiversity, and the Law on Tourism. In addition, it incorporates subordinate legal instruments issued by the Government and relevant ministries, including Decrees, Decisions, and Circulars. These instruments are promulgated by entities such as the Vietnam Ministry of Agriculture and Rural Development (MARD), the Vietnam Ministry of Culture, Sports, and Tourism (MOCST), the Vietnam Ministry of Natural Resources and Environment (MONRE), and the Ministry of Finance (Table 5.1).

The legal framework governing ecotourism development in the BTT region exhibits several strengths. It encompasses a set of regulations addressing various aspects, including business operating conditions, responsibilities of ecotourism service providers, tourism activity management, and environmental protection. This comprehensive framework fosters a healthy business environment, prioritizes tourist safety, and safeguards the ecological integrity of the region. Furthermore, several regulations are specifically tailored to the unique characteristics of ecotourism (IERSD, 2020). Examples include restrictions on permanent infrastructure construction, regulations governing cave exploration activities, and measures for biodiversity protection. These targeted regulations play a vital role in preserving the ecological value of protected areas within the BTT region. The development and implementation of ecotourism regulations benefit from the coordinated efforts of relevant ministries. These include the MARD, the MOCST, the MONRE, and the Ministry of Finance. This inter-ministerial collaboration helps ensure consistency and efficiency in ecotourism management practices within the BTT region.

Table 5.1. Regulations on Ecotourism Development in the Binh-Tri-Thien Region

Level	Laws and regulations	Issuing agency
Nation	Resolution 08-NQ/TW (2017) on the 'Developing tourism into a spearhead economic sector'	Communist Party of Vietnam
	Law on Tourism (2017b)	National Assembly of Vietnam
	Law on Forestry (2017a)	
	Law on Biodiversity (2018)	
	Decision No. 147/QĐ-TTg (2020a) on the 'Vietnam Tourism Development Strategy to 2030'	Prime Minister of Vietnam
	Decree No. 60/2021/ND-CP (2021) regulating the financial autonomy of public non-business units in economic and other non-business sectors	
Province	Resolution 35/2017/NQ-HĐND (Quang Tri province, 2017) on the 'Master Plan for Ecotourism Development in Quang Tri province until 2025'	Quang Tri Provincial People's Committee
	Resolution 12/2022/NQ-HĐND (2022) on the 'Policy for Supporting Ecotourism Development in Quang Tri province, 2022-2030'	
	Decision No. 1928/QĐ-UBND (2018) on the 'Master Plan for Tourism Development in Quang Binh province until 2020, with a Vision to 2025'	Quang Binh Provincial People's Committee
	Decision 45/2023/QĐ-UBND (2023a) stipulating the 'Management Model for Provincial-Level Tourist Areas in Quang Binh province'	
	Decision No. 2128/QĐ-TTg (2023b) on the 'Master Plan for the Development of the Phong Nha-Ke Bang National, Quang Binh province until 2030'	
	Decision No. 153/QD-UBND (2020a), on the 'Ecotourism, Resort, and Entertainment Project of Phong Nha-Ke Bang NP, for the period 2021-2030'	
	Resolution 05/2019/NQ-HĐND (2019) stipulating the 'Policy for Supporting Community-based Ecotourism Development in Hue City until 2025'	Hue City People's Committee
	Decision 3028/QĐ-UBND (2022a) on the 'Orientation for the Development of Ecotourism Associated with Streams and Waterfalls in Hue City'	

However, the current regulatory framework for ecotourism remains overly complex and fragmented. Lengthy administrative procedures and the requirement to complete multiple steps have created significant barriers for businesses seeking to obtain licenses and register for operation. Moreover, several legal provisions concerning business conditions, corporate responsibilities, and tourism management lack clarity and specificity. This ambiguity often results in unintentional legal violations or challenges in enforcing regulations. In addition, inconsistencies and overlaps among regulations issued by different ministries and sectors further complicate compliance, placing additional burdens on tourism enterprises (IERSD, 2020).

5.2. Organizational Apparatus and Forms of Ecotourism Activities

In the Binh-Tri-Thien region, ecotourism is managed within Vietnam's nationwide regulatory and institutional framework. This system operates through a well-defined hierarchy, spanning from central authorities to local administrations, and engages various ministries and agencies at each level (Figure 5.1). Each level has specific role and responsibilities in managing and developing ecotourism. At the central level, the Vietnam Ministry of Culture, Sports, and Tourism (MOCST) plays a leading role in formulating policies, laws, and general standards for ecotourism nationwide. The Vietnam National Administration of Tourism (VNAT) is a specialized agency that assists the Ministry in carrying out these tasks. At the provincial level, the provincial Department of Culture, Sports, and Tourism represents the Ministry at the local level, responsible for implementing the Ministry's policies and managing ecotourism activities within the province. At the district level, the district Department of Culture, Sports, and Tourism carries out tasks assigned by the provincial department and coordinates with other units to manage ecotourism at the local level. At the communal level, cooperatives, and community-based organizations are directly involved in organizing and managing ecotourism sites (Lipscombe and Thwaites, 2003b).

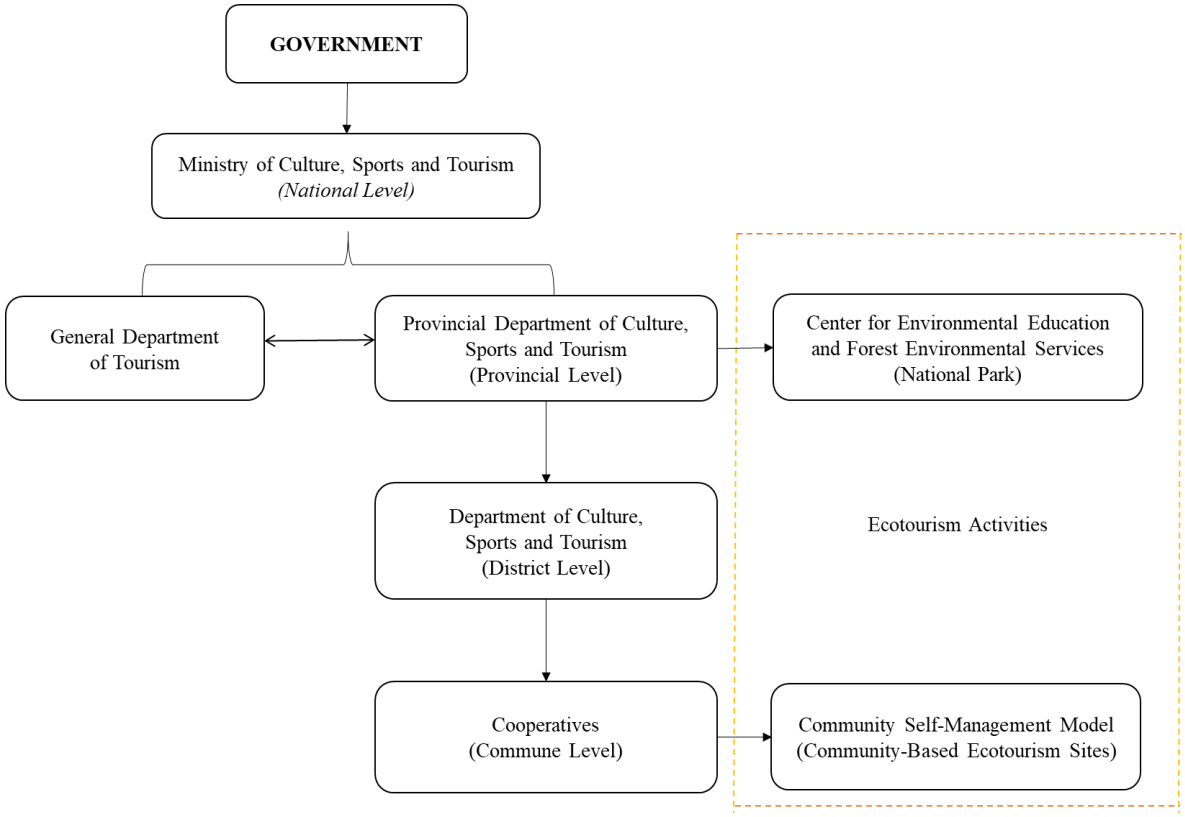

Figure 5.1. Organizational Apparatus for Managing Ecotourism Activities in Vietnam

In national parks where tourism activities are developed, the management of tourism operations typically falls under the responsibility of the Environmental Education and Forest Environment Services Centers. These centers are tasked not only with managing ecotourism development but also with playing a crucial role in environmental education aimed at tourists and the community. The center also includes specialized teams, departments, or units responsible for various services such as ticket inspection, reception and guidance, accommodation, and food services. In other ecotourism sites, tourism management is handled by smaller tourism departments with fewer staff and without specialized teams or units.

Overall, the organizational structure for management is relatively complete, encompassing governmental agencies from the central to local levels, tourism enterprises, and social organizations. Each level, agency, and organization has specific functions and duties in managing and operating ecotourism services. However, this multi-level structure can also lead to overlaps in functions, inconsistencies in policy enforcement, and delays in decision-making, particularly when coordination among agencies is weak or unclear.

Forms of Organization of Ecotourism Business Activities

The organization and functioning of ecotourism business activities in the Binh-Tri-Thien (BTT) region follow a structure that is broadly representative of the national system applied across most provinces in Vietnam. In this context, ecotourism activities in the BTT region are implemented through the following main forms: 1) self-organized; 2) joint venture; 3) leased forest resources and 4) community self-management model.

Self-organize Ecotourism Business Activities

National Park Management Boards (NPMB) operate ecotourism ventures directly through tourist centers and tourism boards. Entrance fees constitute the primary revenue source for national parks. The current fee system reveals several issues. First, since the implementation of the Decree on Fees and Payments in 2001 (NAVN, 2001), a fixed pricing structure has been employed, with no adjustments made to reflect variations in park resources, conditions, or market demand. This static fee system has persisted until 2016, when regulatory changes granted the Ministry of Finance authority to modify entrance fees. Despite this, a uniform fee schedule remains in effect for all the Vietnam Ministry of Agriculture and Rural Development (MARD)-managed national parks, with adult visitors charged VND 60,000[4]. Discounted rates of VND 20,000 are applied to students and pupils, while a fee of VND 10,000 is levied on

[4] Exchange rate: 1 USD = 25,000 VND

children. In addition, a 50% reduction, resulting in a fee of VND 30,000, is extended to individuals with disabilities and senior citizens (Huong and Long, 2020).

Secondly, the economic valuation of ecotourism resources within national parks is underestimated. Finally, organizational fragmentation hinders ecotourism management within national parks. As ecotourism is primarily a leisure activity, its revenue generation and investment typically fall under the purview of the Vietnam Ministry of Culture, Sports, and Tourism (MOCST), the MARD is the primary funding source for national park management. This dichotomy results in overlapping responsibilities, with entrance fee management assigned to the former ministry while park management and investment reside with the latter. Consequently, ecotourism development and associated fee collection have received inadequate attention from park rangers and relevant agencies due to unclear jurisdictional boundaries (Huong and Long, 2020).

Leasing Forests and Forestry Land

The NPMB can use part of the forest and forestry land to lease to organizations and individuals for the purpose of ecotourism business combined with the protection and development of forests and parks. Nature conservation is carried out in accordance with approved planning and current legal regulations. Based on the approved forest development plan, the NPMB is authorized to lease forest environments to organizations and individuals for ecotourism business purposes. The sale of tickets for entering protected forest areas not included in the leased area is not permitted. The lease price for forest environments is determined by the competent authority or through auction. According to Decision No. 104/2007/QD-BNN dated December 27, 2007, the lease price for forest environments is calculated based on Decree No. 48/2007/ND-CP dated March 28, 2007 on the principles and methods of determining the prices of various forest types and according to the approved leasing plan. The initial lease price, agreed upon by both parties, can be adjusted every five years, but not exceeding 2% of the revenue (Huong and Long, 2020). Leasing forest resources to the private sector offers potential advantages, including increased investment in national parks and augmented conservation revenue. Moreover, leased forest areas often exhibit enhanced protection. However, challenges arise in effectively monitoring and enforcing project compliance. In practice, some companies deviate from approved plans, either by securing large leases without substantial development or by prioritizing tourism infrastructure over conservation. These actions undermine the intended benefits of the leasing arrangement.

Joint Venture, Association with Other Organizations and Individuals

The NPMB forms joint ventures with other organizations and individuals. It also cooperates with them to carry out ecotourism business activities in national parks. This partnership model involves national parks contributing capital and collaboratively managing ecotourism operations with private partners. Joint ventures aim to balance the interests of both parties, with national parks providing unique resources and private companies offering financial and operational expertise.

The Phong Nha-Ke Bang National Park exemplifies successful joint venture implementation, involving key stakeholders in decision-making for tourism and recreation activities. However, this co-management model's applicability to other national parks, especially those under provincial management, is limited. Joint ventures often operate on a small scale and encounter challenges due to a lack of specific guidelines. This hinders partnership formation, agreement negotiation, and the clear delineation of responsibilities (Minh Dao and Quang Bao, 2018).

Community Self-Management Model (Cooperative)

Other ecotourism destinations (A Nor Waterfall; Ngu My Thanh Village) are managed according to the community self-management model, with the participation of the following entities (Minh Dao and Quang Bao, 2018), including:

1) Commune People's Committee: Responsible for state management of tourism in the commune. This includes licensing tourism service businesses, checking and inspecting tourism activities, and handling violations in tourism activities.
2) Tourist Area Management Board: Established by the Commune People's Committee, this board is responsible for managing and operating tourism activities in the tourist area. Its responsibilities include developing tourism development plans, managing tourism infrastructure, organizing tourist activities, and collecting tourist entrance fees.
3) Community Tourism Cooperative: Established by local people, this cooperative is responsible for providing tourism services to tourists. These services include accommodation, meals, tour guides, and organization of cultural activities.
4) Households Providing Tourism Services: These households provide homestay tourism services, sell souvenirs, and serve meals to tourists.

Therefore, the organization of ecotourism business activities in the BTT region undertaken through a variety of organizational models. Each model offers its own advantages

and limitations. Choosing the appropriate management structure should depend on several factors, including the characteristics of the area, the resources available to the Management Board, the experience of partner businesses, and the desires of the local community.

5.3. Ecotourism in the Binh-Tri-Thien Region: Data Overlook

This subchapter introduces and analyzes the key quantitative and qualiatative factors related to ecotourism in the Binh-Tri-Thien (BTT) region, including tourist arrivals and revenue. In addition the promotional activities for ecotourism are discussed. These analyses should help assess the impact and effectiveness of this sector within the region.

Tourist Arrivals

In reality, there is no specific statistical data on ecotourism in the provinces within the BTT region. Statistics typically focus on general tourism indicators such as the number of tourists and tourism revenue. Additionally, in Vietnam, ecotourism is a broad concept with various interpretations, making it difficult to collect specific ecotourism data. Therefore, this subchapter focuses on analyzing data collected from ecotourism sites in the BTT region (primarily national parks and community-based ecotourism destinations). The selected sites include Phong Nha-Ke Bang National Park, Bach Ma National Park, A Nor Waterfall, and Ngu My Thanh Village. However, it should be noted that Ngu My Thanh Village was officially recognized as a tourism destination only in 2024. As a result, data from this site is not yet available for analysis in this study.

Specifically, some national parks, with favorable transportation conditions or unique tourism resources, have attracted large and steady numbers of visitors over the years (e.g., the Phong Nha-Ke Bang and Bach Ma National Parks); other nature reserves in the region have not yet organized visitor reception activities. From 2015 to 2019, ecotourism sites in the BTT region showed a steady increase in visitor numbers. However, due to the severe impact of the COVID-19 pandemic, 2020 and 2021 witnessed a sharp decline in visitor numbers at all sites. Recovery began in 2022, with visitor numbers gradually increasing. However, recovery rates varied across different sites and have yet to fully return to pre-pandemic levels.

Comparisons between tourist destinations reveal that the Phong Nha-Ke Bang National Park is the most popular site in the region, with significantly higher visitor numbers than other sites (696,167 tourists in 2023). This indicates that the Phong Nha-Ke Bang National Park is a major destination in the BTT region. Despite good growth before the pandemic (from 15,900 tourists in 2015 to 29,250 in 2019), visitor numbers at the Bach Ma National Park remain

much lower than those at the Phong Nha-Ke Bang National Park. However, the Bach Ma National Park still has significant tourism development potential, especially in ecotourism. The A Nor Waterfall was only recognized as a tourist destination in 2020 and has only started attracting tourists since then. Visitor numbers here are still relatively small but show positive growth (5,098 tourists in 2023) (Table 5.2).

Comparisons between domestic and international tourists at the three destinations (Phong Nha-Ke Bang, Bach Ma, and A Nor Waterfall), domestic tourists significantly outnumbered international tourists from 2015 to 2023. In 2020 and 2021, the number of international tourists dropped sharply due to international travel restrictions. This led to domestic tourists becoming the primary source of visitors for these destinations. This suggests a need for a more robust promotional strategy to attract more international tourists.

Table 5.2. Tourist Arrivals at the Selected Destinations in the Binh-Tri-Thien Region

Year	Tourist arrivals								
	Phong Nha-Ke Bang National Park			Bach Ma National Park			A Nor Waterfall		
	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreign
2015	507,934	449,383	58,551	15,900	11,078	4,822	-	-	-
2016	482,930	432,576	50,354	18,200	13,380	4,820	-	-	-
2017	509,421	450,345	59,076	18,652	12,433	6,219	-	-	-
2018	834,316	675,333	158,983	23,200	14,898	8,302	-	-	-
2019	953,675	764,328	189,347	29,250	24,014	5,236	-	-	-
2020	383,512	345,348	38,164	16,170	13,668	2,502	7,237	4,822	575
2021	478,235	419,684	58,551	6,113	5,981	132	1,586	4,820	734
2022	563,712	513,358	50,354	9,658	7,936	1,722	3,417	6,219	965
2023	696,167	608,709	87,458	12,843	10,783	2,060	5,098	8,302	1,041

Source: author's work based on BMMB, 2023; Hong Kim Commune, 2023; PNKBMB, 2023

Revenue

The revenue of the national parks and community-based ecotourism sites primarily comes from entrance fees and ancillary services (such as guiding, planting, and portering). Specifically, national parks retain 90% of the total fees collected to cover costs, with the remainder going to the state budget (PMVN, 2021).

Similar to visitor numbers, tourism revenue at the Phong Nha-Ke Bang National Park and Bach Ma National Park showed strong growth before the pandemic but was severely impacted by COVID-19. Although both destinations are recovering, revenue at Bach Ma has yet to return to pre-pandemic levels. A Nor Waterfall is a new tourism site with modest

revenue but is showing signs of growth. This reflects the overall recovery of the tourism in the BTT region post-pandemic, but a more sustainable growth strategy is still needed (Table 5.3).

Table 5.3. Tourism Revenue at the Selected Destinations in the Binh-Tri-Thien Region

Year	**Tourism revenue** (billion VND)		
	Phong Nha-Ke Bang National Park	Bach Ma National Park	A Nor Waterfall
2015	480	133	-
2016	622	110	-
2017	862	145	-
2018	1,156	238	-
2019	1,428	121	-
2020	878	57	1.4
2021	342	95	0.7
2022	476	112	0.9
2023	687	146	1.2

Source: author's work based on BMMB, 2023; Hong Kim Commune, 2023; PNKBMB, 2023

Ecotourism Promotion

Currently, communication and promotion activities for ecotourism in the BTT region are primarily conducted through the following media and channels: 1) through tourism websites and social media; 2) promotional publications (posters, travel guides, brochures, etc); and 3) mass media (television, radio, newspapers).

The national parks and some community-based ecotourism sites have websites to introduce and provide information about general activities, as well as promote tourism. This is a modern, convenient, and low-cost promotional tool. For example, Phong Nha-Ke Bang National Park (https://phongnhakebang.vn/) and Bach Ma National Park (https://bachmapark.com.vn/) both maintain websites that offer details about entrance fees, tour routes, available services, and maps of the protected areas. However, few tourist sites have effective websites with comprehensive and up-to-date information on tourism. Recently, with the boom of social media platforms (Facebook, Instagram), some ecotourism sites have taken advantage of promoting their units, such as the Phong Nha-Ke Bang National Park, Bach Ma National Park, and A Nor Waterfall (IERSD, 2020).

Promotional publications are a traditional and popular means of communication and promotion for tourist sites. Most ecotourism sites in the BTT region have promotional publications about their units, as well as introducing programs, destinations, and tourism services (IERSD, 2020). Some national parks, with the support of international projects, have

published guidebooks and travel guides, introducing nature, people, culture, history, society, tours, and tourist destinations.

Mass media such as television and radio are widely acknowledged as effective tools for promoting ecotourism, thanks to their broad audience reach and strong visual and auditory impact. In the BTT region, several national and provincial media outlets – such as VTV (Vietnam Television), TRT (Hue Radio and Television), Quang Tri Television and Quang Binh Television – have occasionally featured reports and documentaries on the natural beauty and tourism potential of destinations; such as Phong Nha-Ke Bang National Park or A Nor Waterfall. These programs have contributed to raising public awareness and attracting both domestic and international tourists. However, the production of such media content, especially for television, requires significant financial resources and professional expertise. This poses a major challenge for most local ecotourism sites, particularly community-based ones, which often lack the budget and technical capacity to independently develop promotional content or purchase airtime. As a result, their presence on mass media is often sporadic and heavily reliant on external support – such as government tourism campaigns, donor-funded conservation projects, or media collaborations initiated by provincial tourism departments (Linh and Walter, 2014; Phan, 2019).

In addition, other advertising activities in the BTT region such as participating in fairs, workshops, press conferences, and exhibitions have not been given much attention by tourist sites due to a lack of funding, insufficient awareness, lack of professional knowledge about tourism services, and a lack of specialized organizational apparatus and personnel.

Summary of Chapter 5

Chapter 5 analyzes the organizational aspects and statistical data related to ecotourism activities in the Binh-Tri-Thien (BTT) region. The chapter focuses on clarifying the legal framework, organizational structure, and business models for ecotourism while providing statistical analyses based on secondary data collected from national parks and community-based ecotourism sites.

Specifically, the analysis of the legal framework highlights the critical role of existing regulations and policies in guiding ecotourism development in the region. The organizational structure for ecotourism activities involves multiple stakeholders, including government agencies, enterprises, and local communities. However, the regulatory system for ecotourism remains cumbersome and complex, characterized by lengthy administrative procedures that

pose challenges for businesses in obtaining permits and registering operations. Certain regulations concerning business conditions, corporate responsibilities, and tourism management lack clarity and specificity. The chapter also clarifies various organizational models for ecotourism businesses, including entrance fee collection, self-organized businesses, forest and forestry land leases, joint ventures, and community self-management models. Notably, the community self-management model proves to play a crucial role in developing ecotourism while protecting the environment and preserving indigenous cultural values.

Statistical analyses based on secondary data from national parks and community-based ecotourism site provide practical insights into tourist volumes, revenue, and promotional activities. Tourism concentrates in key locations such as Phong Nha-Ke Bang National Park, Bach Ma National Park, and A Nor Waterfall, thanks to their unique natural and cultural landscapes. However, revenue from ecotourism does not yet meet expectations due to limitations in marketing efforts and market connectivity. Promotional activities, especially those aimed at attracting international visitors, remain underdeveloped, highlighting the urgent need to improve marketing and communication strategies.

The content presented in Chapter 5 is significant not only for assessing the current state of ecotourism organization and development in the BTT region but also as a foundation for guiding subsequent field research. Future field studies focus on investigating the realities at national parks, community-based tourism sites, and among key stakeholder groups, including tourists, businesses, and local communities. The findings from these studies further clarify both qualitative and quantitative factors, contributing to the enhancement of the ecotourism database for the BTT region.

Chapter 6. Mapping Ecotourism Potential, Case Study Selection, and Field Research Methodology

Chapter 6 is structured into three main parts: 1) the mapping of ecotourism potential; 2) the selection of case studies for field research, and 3) the methodology of field study.

Subchapter 6.1 details the methodological process of identifying and evaluating suitable areas for ecotourism development in the Binh-Tri-Thien (BTT) region It contains two sections: Section 6.1.1 outlines the step-by-step procedure used in the spatial analysis, including the selection and collection of relevant thematic layers, the standardization and classification of these layers, the assignment of normalized weights through the Analytic Hierarchy Process (AHP), and the overlay analysis performed in a Geographic Information System (GIS) environment. Section 6.1.2 presents the results of the ecotourism potential assessment, highlighting spatial patterns and levels of suitability across the BTT region.

Based on the outcomes of the spatial analysis, subchapter 6.2 focuses on the selection of case study areas in the BTT region for subsequent field research. These case studies sites were chosen primarily based on their location within areas identified as ‘highly suitable’ or ‘suitable’ through the GIS assessment.

Subchapter 6.3 focuses on the collection and analysis of primary data aimed at complementing and validating the main findings. In Section 6.3.1, the three main research stages, including a pilot study conducted in the summer of 2022, the main field study in the summer of 2023, and an additional field study in the summer of 2024, are described. Section 6.3.2 presents the methods applied during the field research, including survey design, questionnaire development, descriptive analysis, proposed model analysis techniques, and in-depth interviews.

6.1. Mapping Ecotourism Potential

The Geographic Information System (GIS) is a powerful tool for collecting, analyzing, and visualizing spatial data (Goodchild, 1991; Ramaano, 2024). The GIS enables the integration of multiple geographic data sources, processing environmental, topographic, infrastructural, and demographic factors to generate meaningful analyses (Quirini-Popławski and Semczuk, 2021; Wieczorek and Delmerico, 2009). In the tourism sector, the GIS is widely applied to assess tourism potential, support spatial planning, manage resources, and assist decision-making processes for policymakers of this sector (Quinta-Nova and Ferreira, 2024; Ramaano, 2024). The application of the GIS in ecotourism research is particularly crucial, as this form

of tourism is heavily dependent on natural factors such as topography, vegetation cover, river networks, and protected areas (Ferdowsi, 2024; Oinam et al., 2024). By leveraging the GIS, spatial visualization through mapping facilitates the identification of suitable ecotourism areas based on specific criteria (Gidey et al., 2024).

The GIS application in this subchapter aimed to develop a potential ecotourism map for the Binh-Tri-Thien (BTT) region. This map helps identify areas with favourable natural conditions and infrastructure for ecotourism development, thereby assisting policymakers in formulating sustainable tourism strategies. The mapping process is based on Overlay Analysis within ArcGIS 10.8 software, combined with Multi-Criteria Decision Analysis (MCDA) using the Analytical Hierarchy Process (AHP) to determine the suitability levels of different areas in relation to chosen criteria.

6.1.1. Process of Mapping Ecotourism Potential

The GIS analysis process for evaluating ecotourism potential involves several key steps, including: 1) the selection and collection of thematic layers; 2) standardizing and classifying these layers; 3) assigning normalized weights to reflect the significance of each layer; and 4) overlaying and classifying the layers to identify potential ecotourism areas (Figure 6.1).

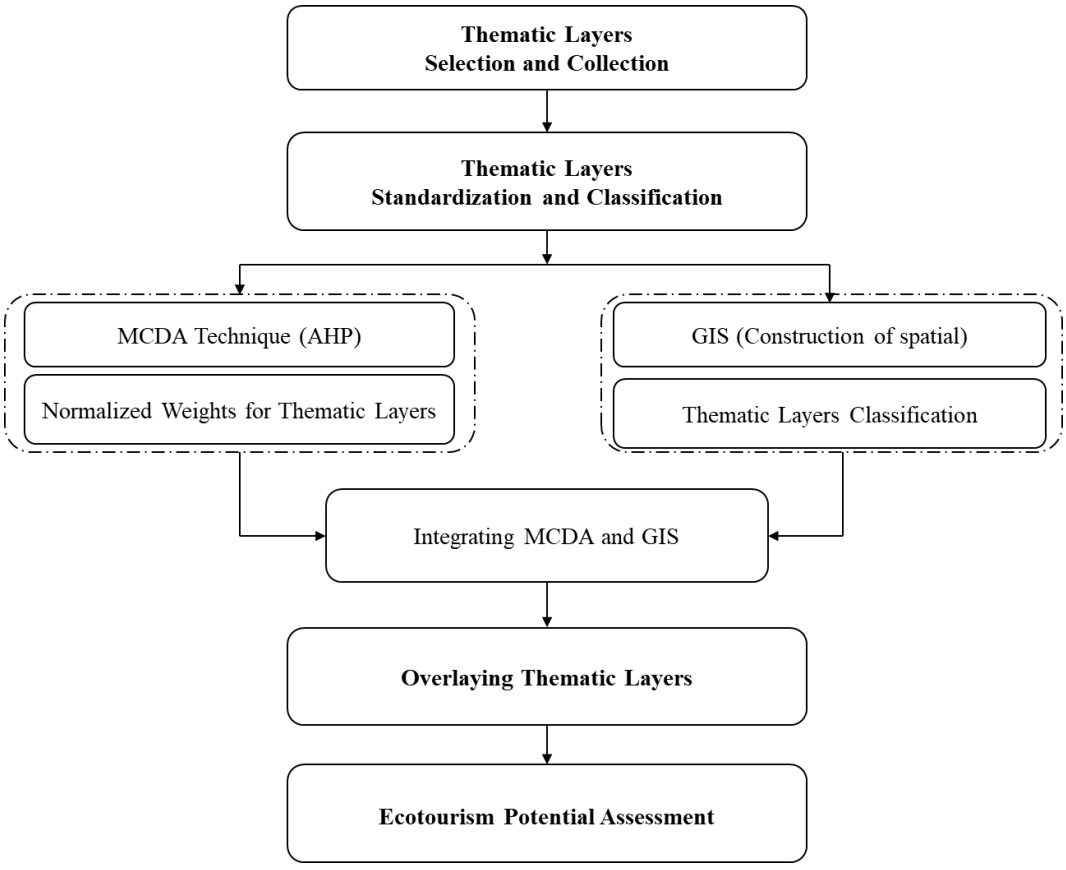

Figure 6.1. GIS-Based Analytical Process for Ecotourism Potential

Thematic Layers Selection and Collection

The first step in the analysis process is to identify and select relevant thematic layers, each representing a factor that influences ecotourism potential. These thematic layers are spatial datasets that correspond to key environmental, social, and infrastructural factors. The selection of thematic layers is largely determined by the availability of spatial data in the study area (Oinam et al., 2024). The influencing factors were chosen based on their significance as reported in previous studies and relevant literature (Andemo et al., 2024; Ferdowsi, 2024; Gidey et al., 2024; Karakuş, 2024; Oinam et al., 2024, Patel and Anuragi, 2024). The selected thematic layers are provided in Table 6.1.

Table 6.1. List of Thematic Layers

	Thematic layers	Data types	Data details	Data sources
1	Elevation	Aster DEM	raster, 30m resolution	NASA Earth Data (https://earthdata.nasa.gov)
2	Slope	Aster DEM	raster, 30m resolution	NASA Earth Data (https://earthdata.nasa.gov)
3	Distance to surface water	ESRI	shape-file	The Hydro-SHEDS Data (https://www.hydrosheds.org)
4	Distance from roads	Open Street Map Data	vector data	Open Street Map Data (https://www.openstreetmap.org/)
5	Vegetation	ESRI	shape-file	Vietnam Geography Institute
6	Distance from protected areas	Google Earth, Open Street Map Data	vector data	Google Earth Engine, Open Street Map Data (https://www.openstreetmap.org/)
7	Temperature	ArcGIS	shape-file	Vietnam Hydro-meteorological Service
8	Rainfall	ArcGIS	shape-file	Vietnam Hydro-meteorological Service
9	Distance to historical and cultural sites	Google Earth, Open Street Map Data	vector data	Google Earth Engine, Open Street Map Data (https://www.openstreetmap.org/)
10	Density of population	Google Earth, Open Street Map Data	vector data	Google Earth Engine, Open Street Map Data (https://www.openstreetmap.org/)

Thematic Layers Standardization and Classification

Once the thematic layers were collected, the next essential step was to standardize them to ensure consistency across all datasets. This involved converting all layers to the same coordinate reference system and using uniform measurement units, allowing for accurate spatial analysis and comparison (Roy et al., 2024). Following standardization, each thematic layer was reclassified based on its influence on ecotourism potential. A five-level suitability classification system was applied, with values assigned as follows: 1) highly suitable; 2) suitable; 3) moderately suitable; 4) marginally suitable; and 5) least suitable (Table 6.2).

Table 6.2. Thematic Layers Classification

Thematic layers		Suitability levels					Description and justification	Sources
		Highly suitable	Suitable	Moderately suitable	Marginally suitable	Least suitable		
1	Elevation (m)	>1500	1001-1500	501-1000	201-500	0-200	Sites located at higher elevations often possess a cooler climate and broad visibility, supporting diverse ecosystems and offering scenic landscapes favorable for ecotourism	Yee et al., 2021; Karakuş, 2024; Sarkar et al., 2025
2	Slope (degree)	<5°	5-15°	16-26°	27-37°	>37°	Low-slope areas ensure visitor safety and facilitate the construction of basic infrastructure (e.g., trails, shelters, signage), while minimizing the risks of soil erosion and landslides	Zabihi et al., 2020; Nguyen et al., 2022; Karakuş, 2024
3	Distance to surface water (km)	<5	5-10	11-16	17-22	>22	Proximity to rivers, streams, and natural lakes enhances the visual appeal and provides engaging ecotourism activities	Pham et al., 2021; Sarkar et al., 2025
4	Distance from roads (km)	>22	17-22	11-16	5-10	<5	Locating sites away from roads mitigates negative impacts from noise, air pollution; helping to preserve the area's tranquility and natural character	Pham et al., 2021; Karakuş, 2024; Sarkar et al., 2025
5	Vegetation	forest	grassland; plantation forest	annual crops	bare land; water surface	built-up land	Forests serve as habitats for various flora and fauna, creating ideal conditions for ecological exploration and ecotourism	Zhang et al., 2013; Karakuş, 2024; Sarkar et al., 2025
6	Distance from protected areas (km)	<5	5-10	11-16	17-22	>22	Protected areas offer both ecological diversity and essential infrastructure that supports conservation efforts and ecotourism activities	Pham et al., 2021; Zenande et al., 2024; Sarkar et al., 2025
7	Temperature (degree Celsius)	16-19	20-23	24-27	28-31	>31	Cooler temperatures provide a more comfortable experience for visitors, particularly in tropical monsoon regions such as Vietnam	Gigović et al., 2016; Cetin et al., 2018; Yee et al., 2021
8	Rainfall (mm/years)	<2100	2100-2300	2301-2500	2501-2700	>2700	Lower rainfall help reduce interruptions in tourism activities and minimize risks such as slipperiness, flash floods, and landslides	Karakuş, 2024; Sarkar et al., 2025
9	Distance to historical and cultural sites (km)	<10	10-20	21-31	32-42	>42	The integration of natural landscapes with cultural and historical values enhances the overall attractiveness of ecotourism destinations	Pham et al., 2021; Sarkar et al., 2025
10	Density of population (people/km^2)	<100	101-200	201-300	301-400	>400	Sparsely populated areas allow better preservation of pristine landscapes, and helping maintain local cultural identity	Pham et al., 2021; Sarkar et al., 2025

The ArcGIS 10.8 software was used to convert thematic layers into base maps (Oinam et al., 2024; D. Roy et al., 2024). Each spatial layer was transformed into raster format and then reclassified into five levels of suitability based on the previously defined criteria.

The elevation map of the BTT region shows a clear gradient from low-lying coastal plains in the east (<200m) to mountainous areas in the west (>1500m), bordering Laos. The central and southwestern parts of the region exhibit a mix of mid-altitude zones (201–1000m). These elevation variations create diverse ecological environments, offering opportunities for various forms of nature-based tourism (Figure 6.2).

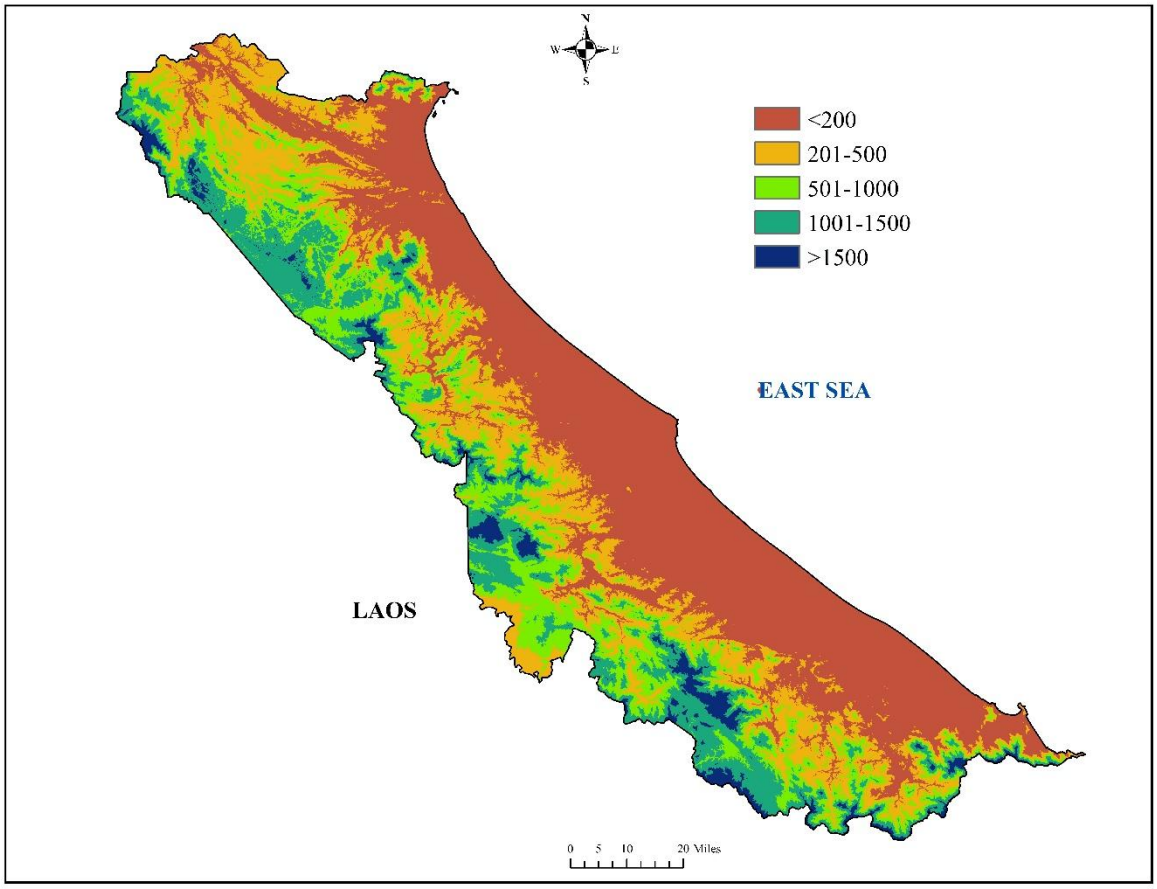

Figure 6.2. Elevation Map of the Binh-Tri-Thien Region (m)

The slope map of the BTT region illustrates that areas with gentle slopes (<5°) dominate the eastern coastal plains and lowlands, making them accessible and highly suitable for basic ecotourism infrastructure. In contrast, steep slopes (>37°) are concentrated in the western and central highlands along the border with Laos (Figure 6.3).

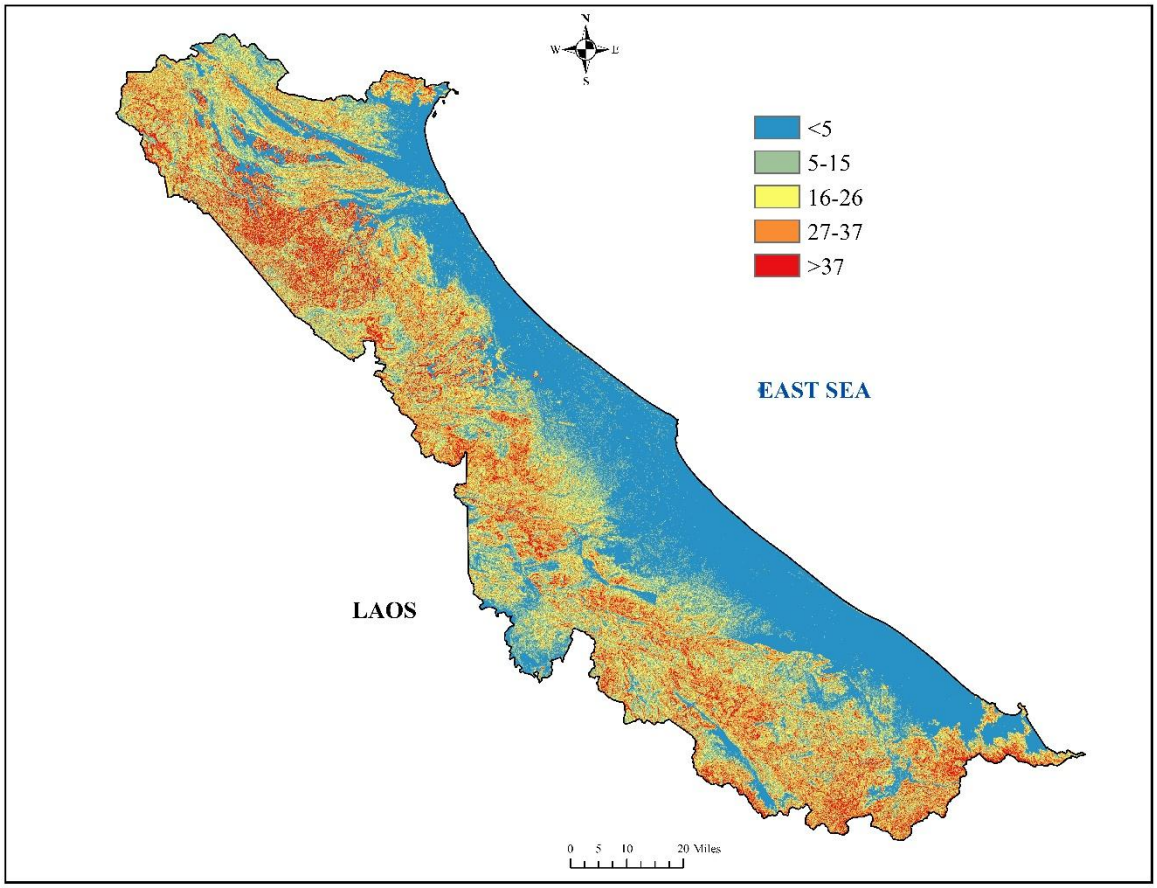

Figure 6.3. Slope Map of the Binh-Tri-Thien Region (degree)

The map shows that most of the region lies within below 10 km of surface water bodies (blue and green), particularly rivers, streams, lagoon and lakes. These areas, especially those within 5 km (dark blue), are highly favorable for ecotourism activities. Meanwhile, regions farther than 22 km from water sources (shown in red) are limited and mainly found in the northwestern highlands, where ecotourism potential may be least suitable (Figure 6.4).

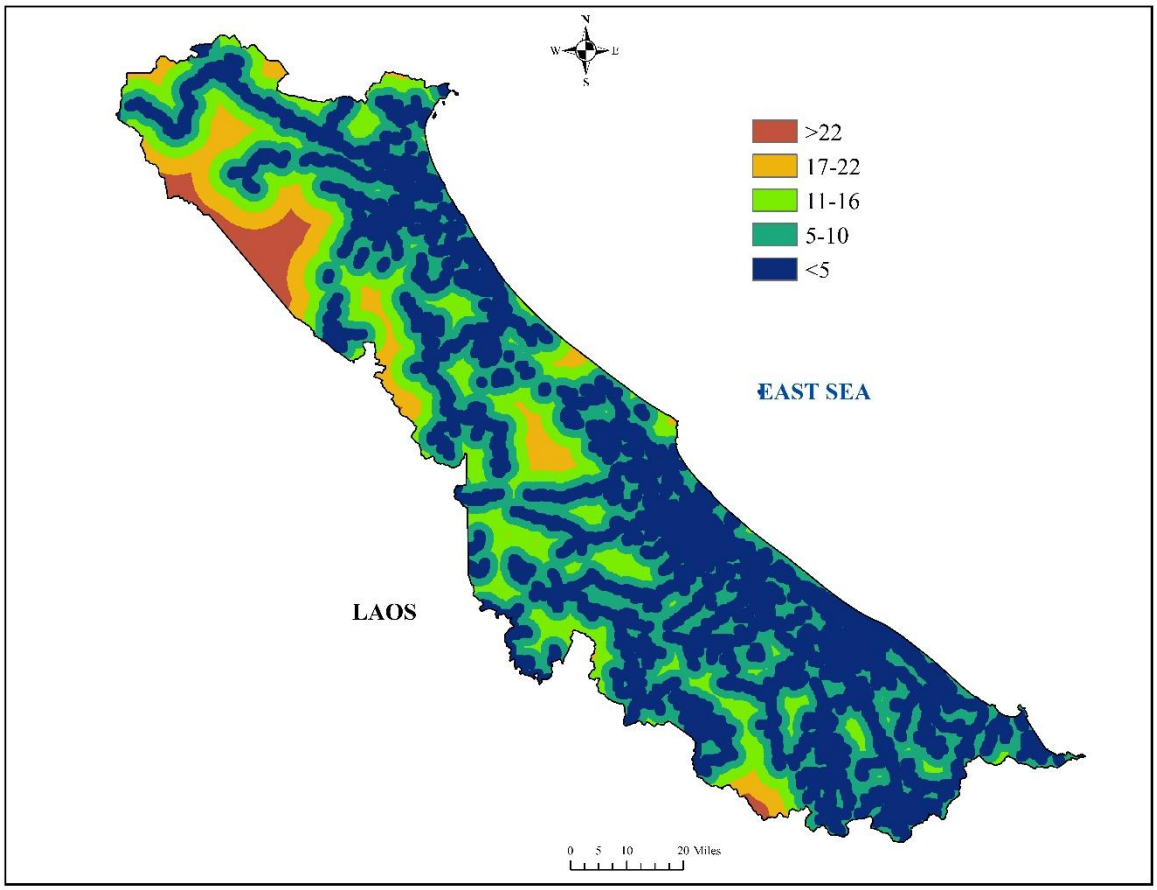

Figure 6.4. Distance to Surface Water Map (km)

The map shows that areas closer to roads (<5 km) are more accessible but least suitable for ecotourism due to higher human impact. In contrast, areas farther from roads (>22 km), mainly in the northwest and southwest near the Laos border, offer highly ecotourism potential thanks to their natural and less disturbed environments (Figure 6.5).

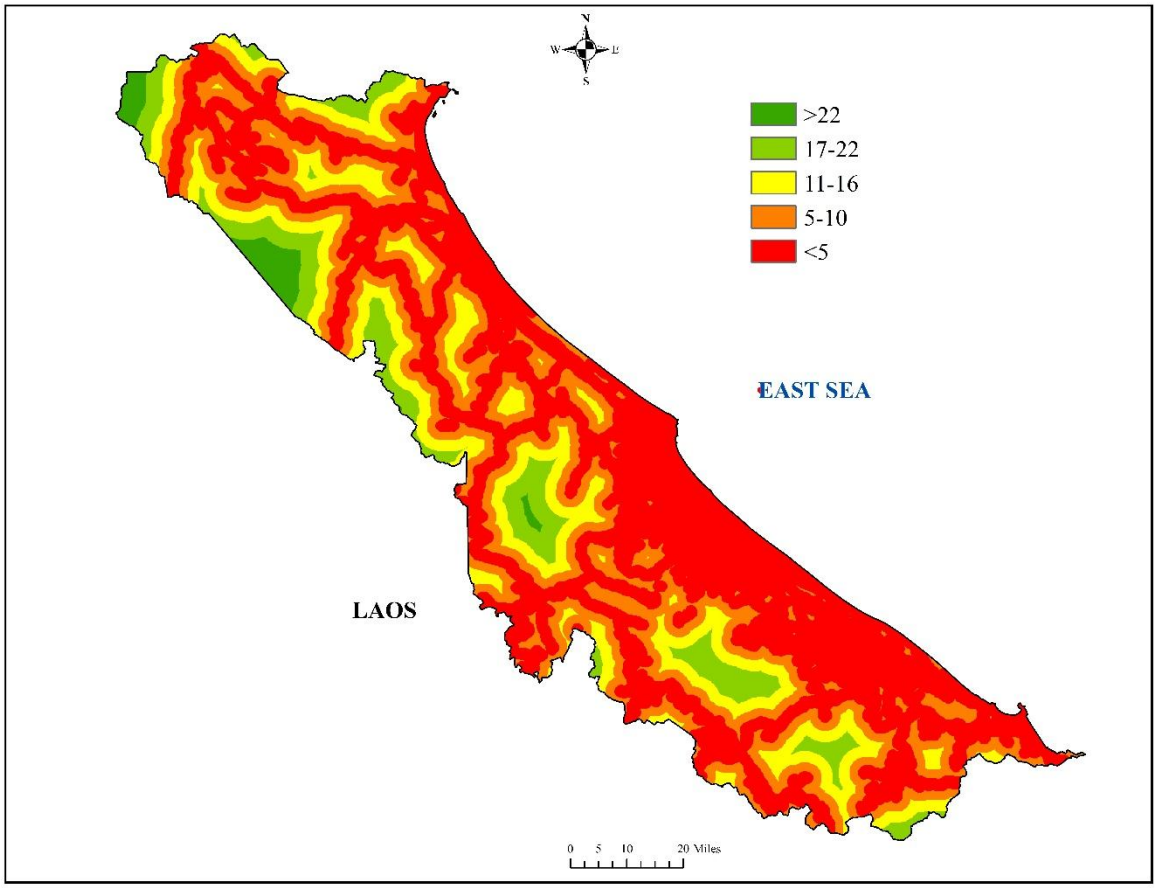

Figure 6.5. Distance from Roads Map (km)

The vegetation map of the BTT region illustrates the forested areas, which dominate the region, are considered highly suitable for ecotourism due to their ecological value and natural landscapes. Grasslands and plantation forests also present moderate potential, particularly in areas with minimal human disturbance. In contrast, built-up land and bare land or water surfaces are less favorable for ecotourism development due to their limited natural appeal and higher levels of anthropogenic influence. Areas under annual crops, mostly located in lowland zones, offer limited suitability for ecotourism activities (Figure 6.6).

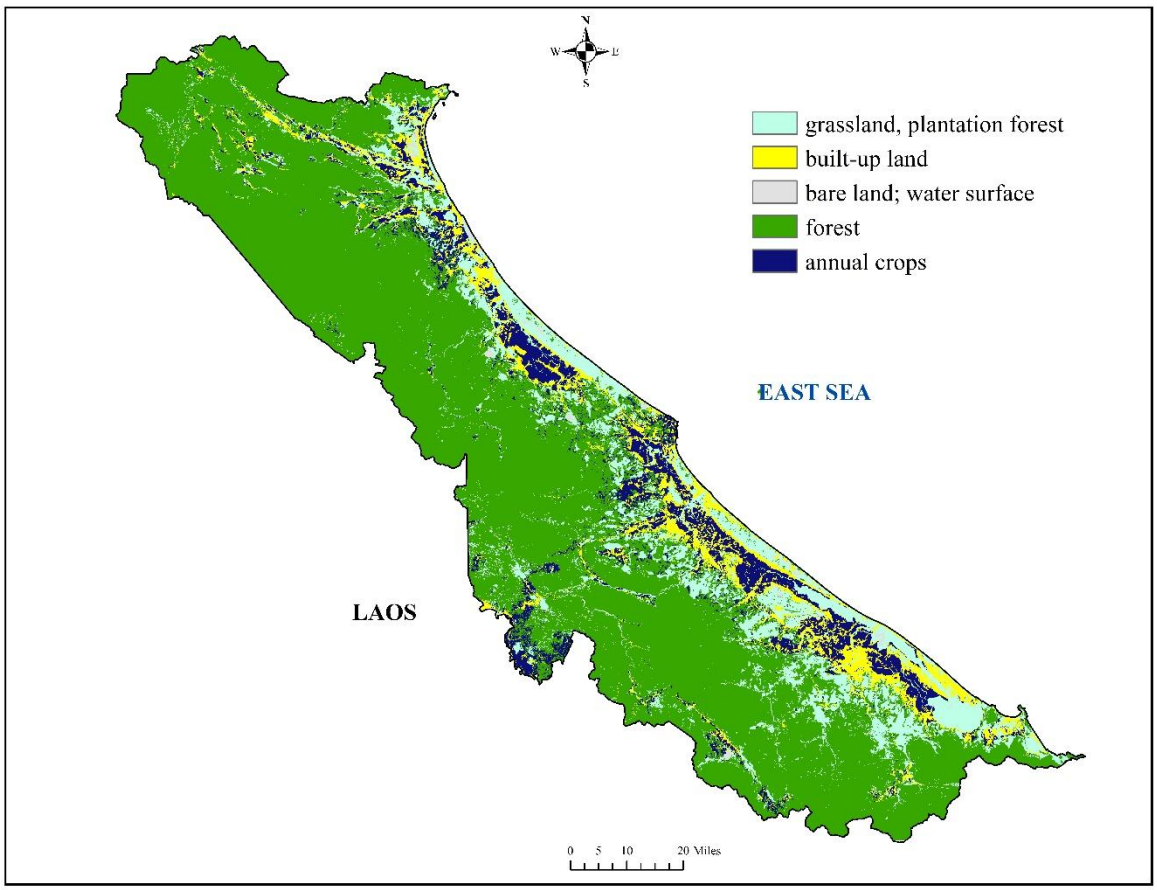

Figure 6.6. Vegetation Map

Areas closer to protected zones, particularly those within dark orange zones (<5 km), are considered highly favorable for ecotourism due to their proximity to biodiversity-rich environments and conservation landscapes. In contrast, areas in the blue zones (>22 km), which are further from protected areas, may have least potential for ecotourism development due to reduced ecological value and distance from key natural attractions (Figure 6.7).

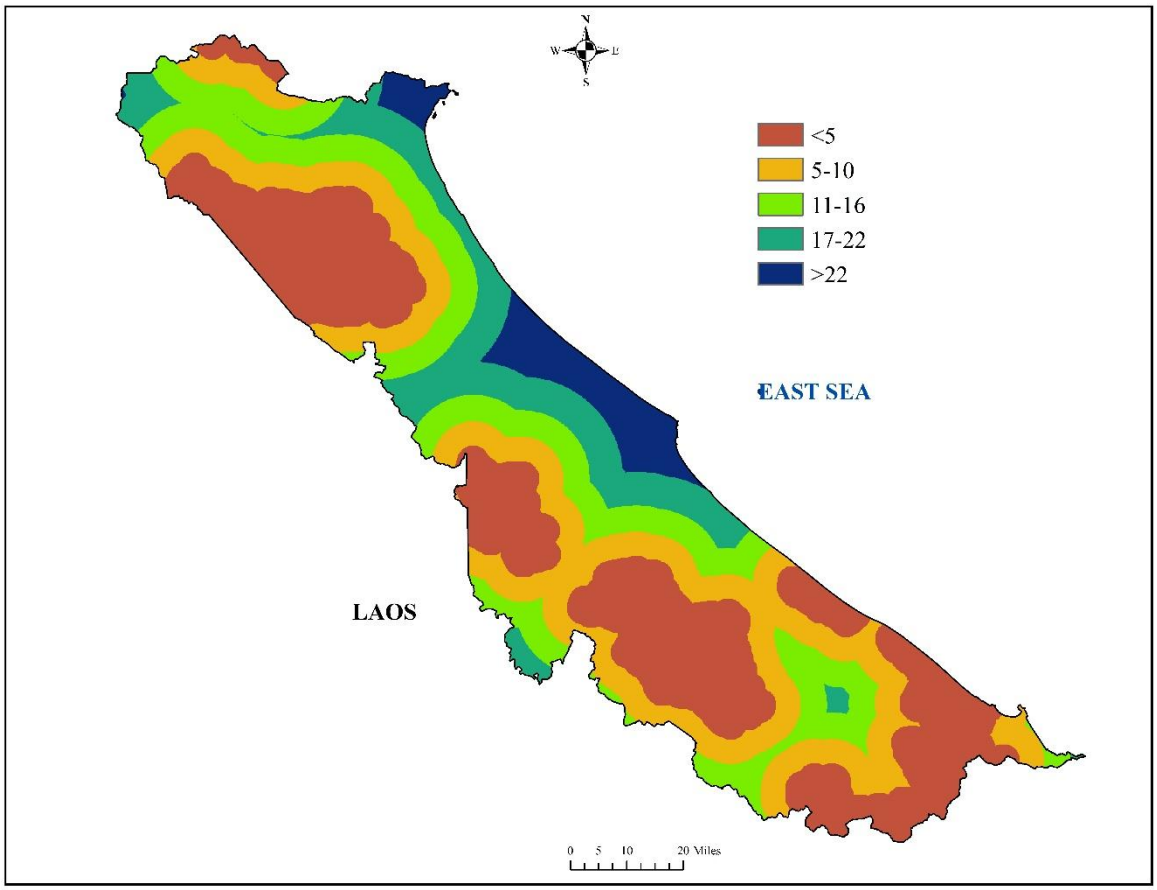

Figure 6.7. Distance from Protected Areas Map (km)

In the BTT region, temperature varies spatially from north to south. The high mountainous western area near the Laos border exhibits cooler average temperatures, ranging from 16–23°C, creating highly favorable conditions for ecotourism. In contrast, the central and eastern lowland and coastal zones record higher temperatures, particularly in the central belt where temperatures often exceed 31°C. These hotter areas may be least suitable for ecotourism during peak summer periods due to thermal discomfort (Figure 6.8).

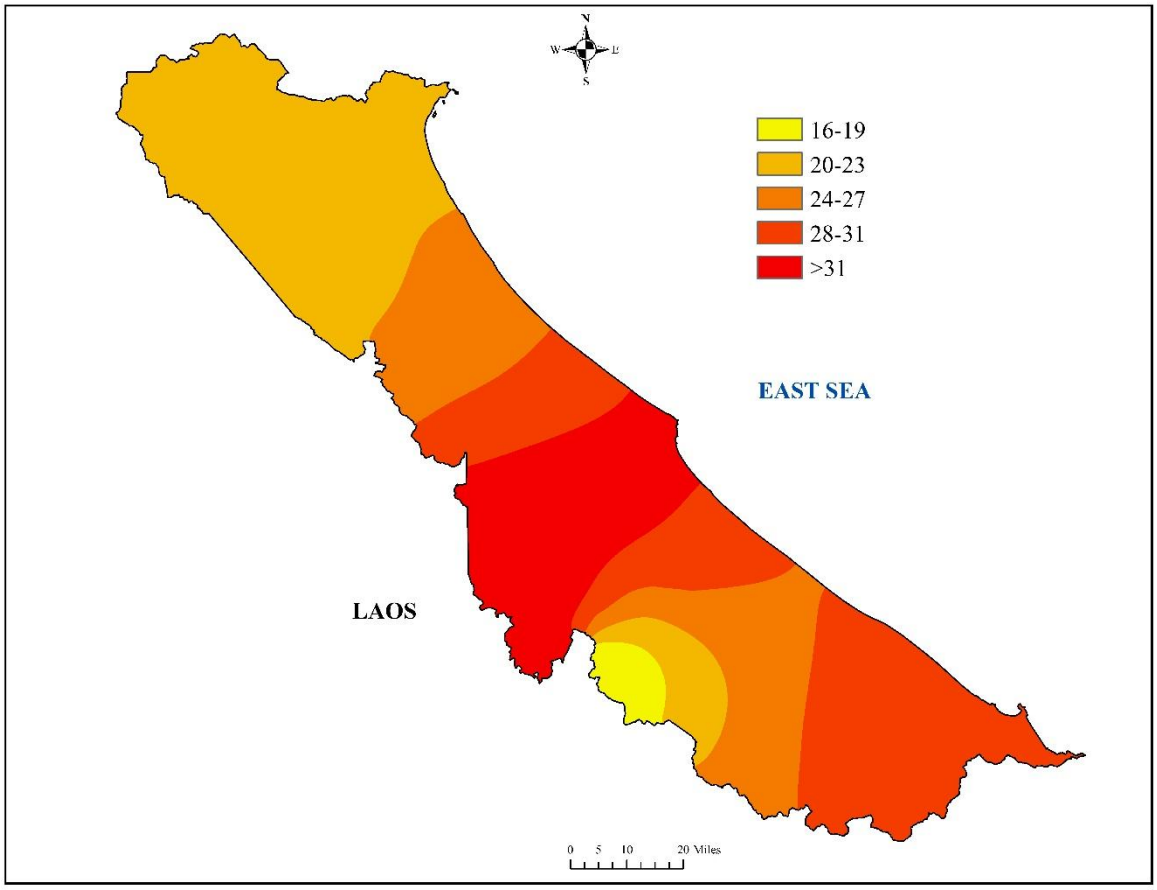

Figure 6.8. Temperature Map (degree Celsius)

In the BTT region, annual precipitation ranges from below 2,100 mm to over 2,700 mm, with higher rainfall generally observed in the central zones, especially in areas adjacent to the Truong Son Range. These regions, shown in darker blue, support lush vegetation and rich biodiversity. However, high rainfall may also pose risks such as flooding or limited accessibility during the wet season. In contrast, the northern and coastal zones receive less rainfall, offering more favorable conditions for year-round tourism activities. Therefore, areas with low rainfall (<2100 mm/year) are considered optimal for ecotourism due to both ecological richness and manageable weather conditions (Figure 6.9).

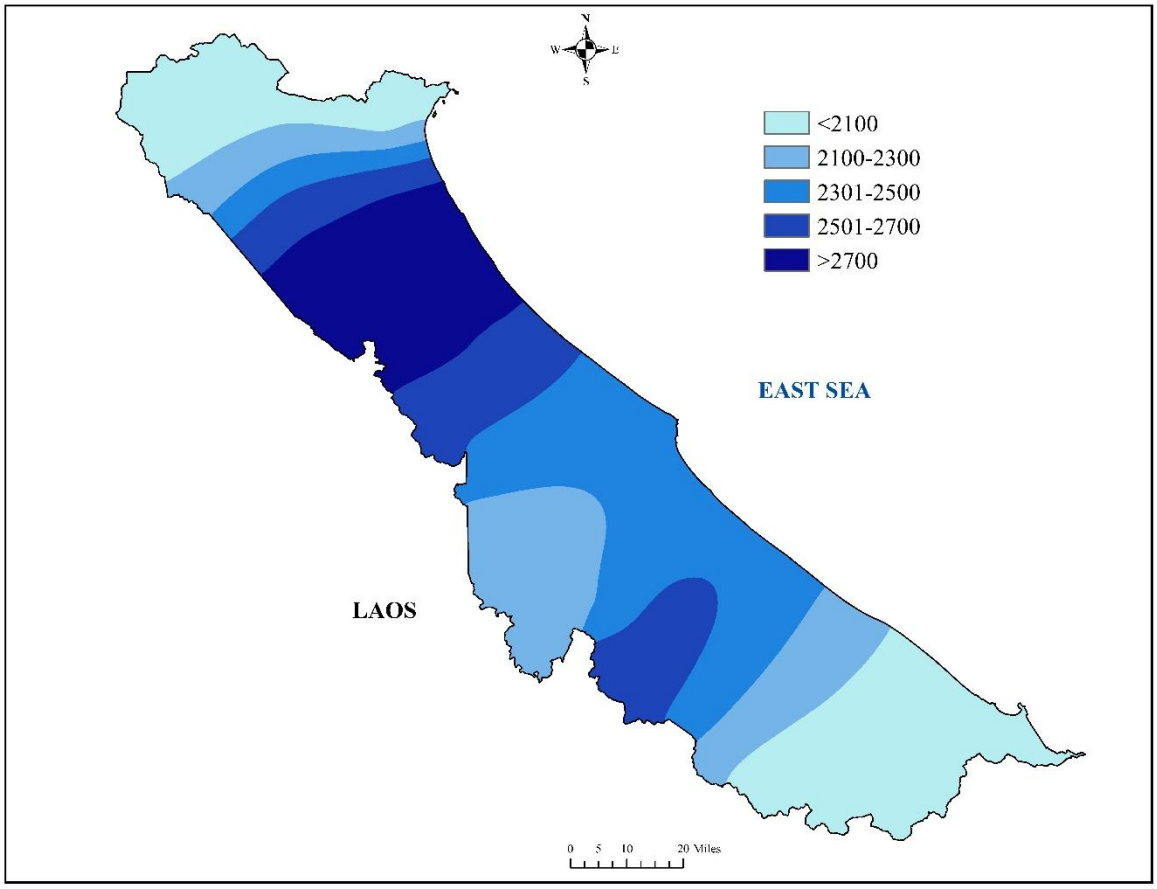

Figure 6.9. Rainfall Map (mm/years)

In the BTT region, the proximity to historical and cultural sites across the area, with central and inland zones – highlighted in dark blue (<10 km). These zones offer highly favorable conditions for integrating cultural experiences into ecotourism activities, enhancing visitor engagement and educational value. Conversely, areas colored in red zones, particularly along the northern and southern peripheries, lie more than 42 km away from such sites, thus presenting least potential in this regard (Figure 6.10).

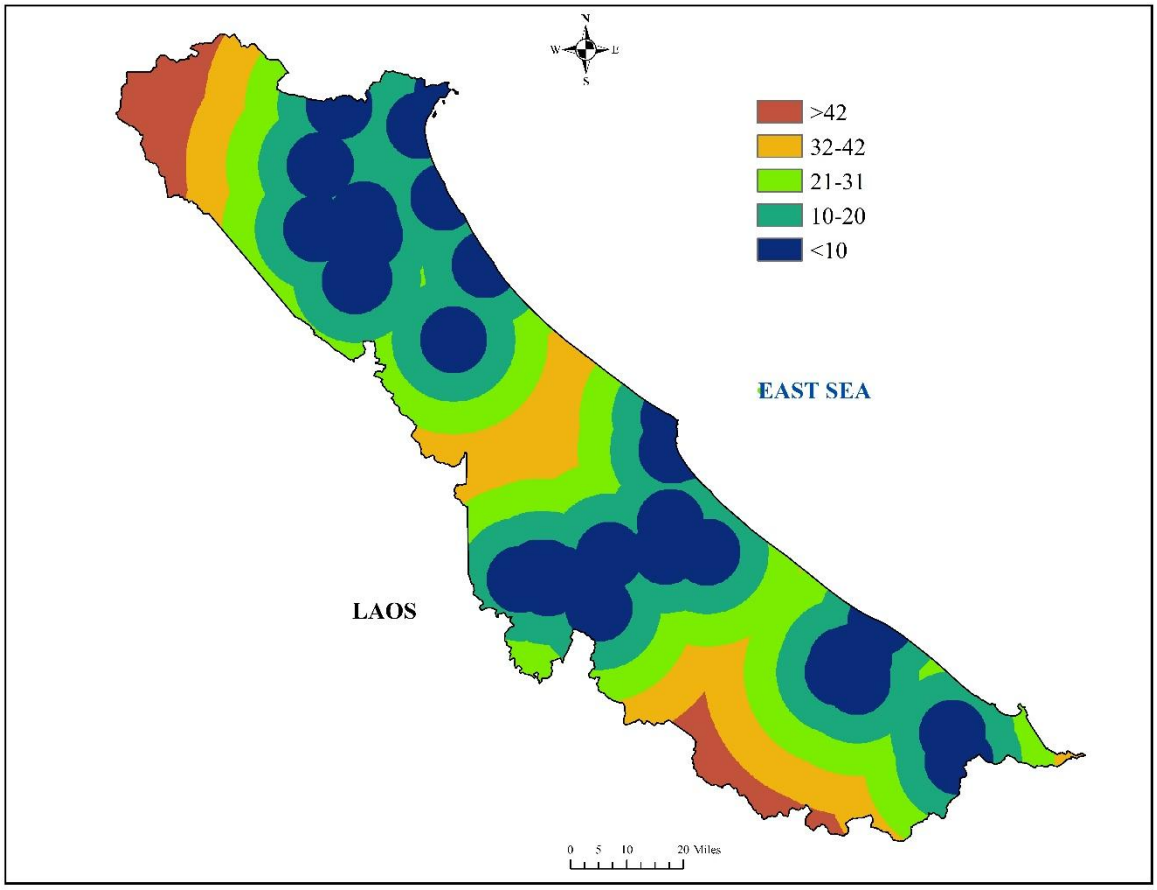

Figure 6.10. Distance to Historical and Cultural Sites Map (km)

In the BTT region, most of the territory is characterized by relatively low population density (<100 people/km^2), especially in upland and remote areas. These zones offer highly favorable conditions for ecotourism development thanks to their relatively undisturbed environments and higher biodiversity conservation potential. In contrast, higher-density areas (>400 people/km^2), primarily located in coastal cities and central plains, face greater urbanization pressure, infrastructure congestion, and environmental degradation, making them least suitable for ecotourism (Figure 6.11).

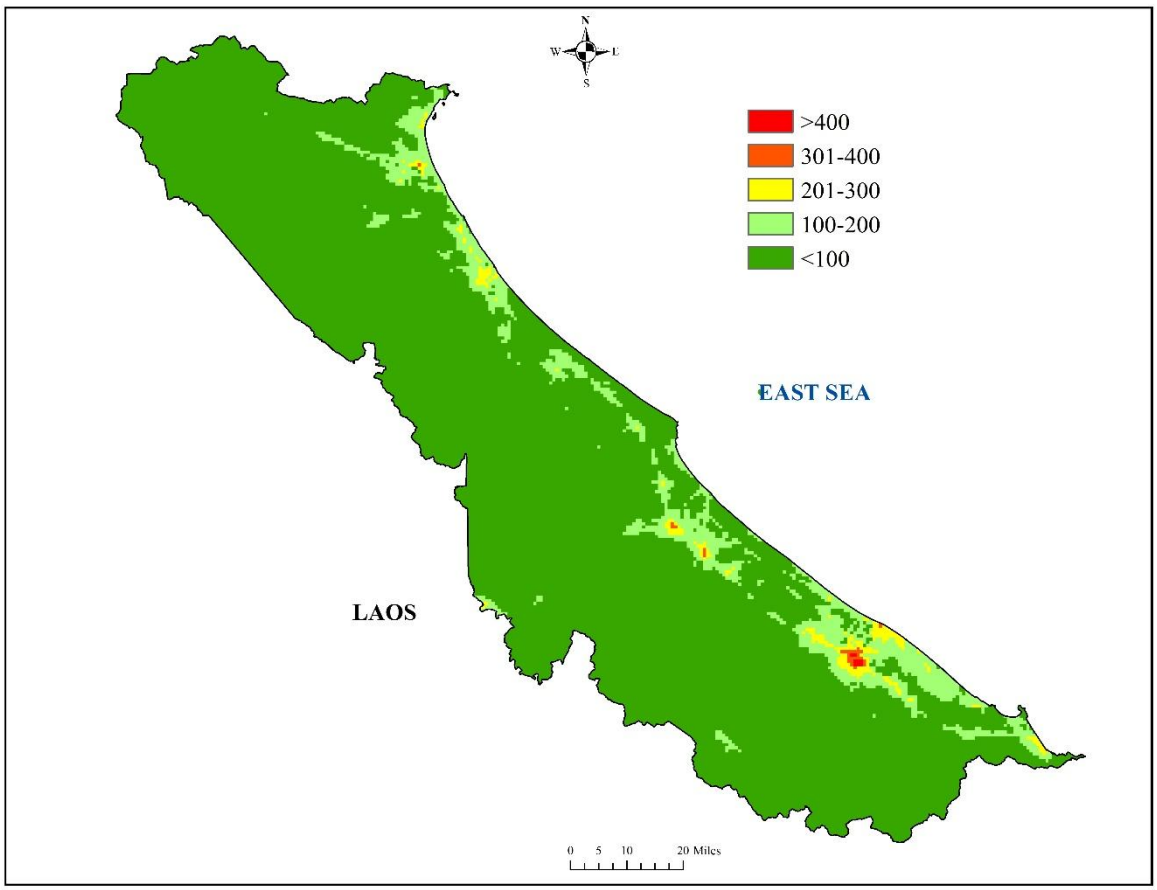

Figure 6.11. Density of Population Map (people/km^2)

Determination of Normalized Weights for Thematic Layers

The Analytic Hierarchy Process (AHP) developed by Saaty (1980) was employed to determine the relative weights of thematic layers used in the ecotourism suitability analysis. Initially, a pairwise comparison method was applied to assess the relative importance of each criterion within a structured hierarchical decision-making framework (Jeelani et al., 2025; Oinam et al., 2024). This technique simplifies expert judgment by requiring comparisons between only two criteria at a time and allows for the evaluation of consistency in the assessments. The comparisons were based on Saaty's fundamental scale (Table 6.3), in which

the values 1, 3, 5, 7, and 9 represent equal importance, moderate importance, strong importance, very strong importance, and extreme importance, respectively. The values 2, 4, 6, and 8 serve as intermediate judgments, while the reciprocals (e.g., 1/2, 1/3, ..., 1/9) indicate the inverse of those preferences (Butowski, 2018; Saaty, 1980).

Table 6.3. Pairwise Comparison Scale

Extent of weight	Description
1	Equal importance
3	Moderate importance of one over another
5	Strong importance
7	Very strong importance
9	Extreme importance
2, 4, 6, and 8	Intermediate values between the adjacent judgments

Source: Saaty (1980)

Assessing ecotourism potential is a complex task that involves multiple environmental, cultural, and infrastructural criteria. Recent approaches have increasingly adopted multi-criteria decision-making (MCDM) methods, particularly the Analytic Hierarchy Process (AHP) integrated with Geographic Information Systems (GIS), to enhance the accuracy and objectivity of such assessments (Andemo et al., 2024; Karakuş, 2024; Pathmanandakumar et al., 2023). The AHP is employed to estimate the relative weights of various criteria (Butowski, 2018), which are then incorporated into GIS to spatially analyze and visualize the suitability of different areas for ecotourism development. By applying these tools, it becomes possible to assign weights to selected criteria, rank different geographic areas based on their suitability, and ultimately identify zones with high ecotourism potential (Jeelani et al., 2025; Oinam et al., 2024).

In the AHP framework, the scoring of factors was conducted through a pairwise comparison process, informed by a comprehensive review of relevant literature and the author's practical knowledge of the local context in the BTT region. Factors deemed to have greater influence on ecotourism suitability were assigned higher scores, thereby establishing a hierarchical structure of importance. The resulting pairwise comparison matrix served as the basis for calculating the normalized weights of each criterion, which were subsequently integrated into the GIS overlay analysis to determine spatial suitability levels.

For instance, the factor (thematic layer) 'Elevation' (factor number 1 in Table 6.4) is considered to be moderately more important (value 3.00) in relation to 'Distance to surface water' (factor number 3 in Table 6.4); analogically it is strongly more important (value 5.00) in relation to the factor 'Distance from roads' (Factor number 4 in Table 6.4). Conversely,

when compared with 'Vegetation' (factor number 5 in Table 6.4), 'Elevation' was assessed as moderately less important (value 0.33), indicating a higher perceived importance of vegetation in determining ecotourism potential. The complete pairwise comparison matrix used for these thematic layers is provided and presented in Table 6.4.

Table 6.4. Pair-wise Comparison Matrix of Thematic Layers

		Thematic layers									
		1	2	3	4	5	6	7	8	9	10
Thematic layers	1	1.00	1.00	3.00	5.00	0.33	0.20	3.00	3.00	0.33	5.00
	2	1.00	1.00	3.00	3.00	0.33	0.20	3.00	3.00	0.33	3.00
	3	0.33	0.33	1.00	3.00	0.33	0.20	1.00	1.00	0.33	3.00
	4	0.20	0.33	0.33	1.00	0.33	0.50	0.33	0.33	0.20	3.00
	5	3.00	3.00	3.00	3.00	1.00	0.33	3.00	3.00	3.00	3.00
	6	5.00	5.00	5.00	2.00	3.00	1.00	5.00	5.00	3.00	5.00
	7	0.33	0.33	1.00	3.00	0.33	0.20	1.00	1.00	0.33	3.00
	8	0.33	0.33	1.00	3.00	0.33	0.20	1.00	1.00	0.33	3.00
	9	3.00	3.00	3.00	5.00	0.33	0.33	3.00	3.00	1.00	3.00
	10	0.20	0.33	0.33	0.33	0.33	0.20	0.33	0.33	0.33	1.00
Sum (Tj)		**14.40**	**14.67**	**20.67**	**28.33**	**6.67**	**3.37**	**20.67**	**20.67**	**9.20**	**32.00**

Note: 1-Elevation; 2-Slope; 3-Distance to surface water; 4-Distance from roads; 5-Vegetation; 6-Distance from protected areas; 7-Temperature; 8-Rainfall; 9-Distance to historical and cultural sites; 10-Density of population. Tj denotes the total values in every column of the pairwise comparison matrix.

After performing pairwise comparisons, the next step is to calculate the weight for each thematic layer. The weight of each layer indicates its relevance and position within the hierarchy system (Saaty, 1977). The normalized pairwise comparison matrix (Table 6.5) is created by dividing the values of each element in the columns of the pairwise comparison matrix (Table 6.4) by the corresponding column totals, as shown in Eq 1:

$$A_{ij} = \frac{P_{ij}}{T_j} \quad (1)$$

(1) where:

A_{ij} represents the normalized pairwise matrix value at the *i* (row) and *j* (column);

P_{ij} denotes the value allocated to every factor;

T_j denotes the total values in every column of the pairwise comparison matrix.

For example: $A_{11} = \frac{1}{14.40} = 0.07$

Following that, the total value of each factor in a row was divided by the number of factors to determine the normalized principal eigenvector (Lentswe and Molwalefhe 2020; Zghibi et al. 2020), as shown in Eq 2:

$$W_i = \frac{\sum_{i=1}^{n} A_{ij}}{n} \quad (2)$$

(2) where:

W_i is the normalized principal eigenvector;

A_{ij} represents the normalized pairwise matrix value;

n: number of factors.

For example: $W_1 = \frac{0.07+0.07+0.15+0.18+0.05+0.06+0.15+0.15+0.04+0.16}{10} = 0.11$

The normalized principal eigenvector was further normalized by multiplying by 100 to provide the factor weights (Table 6.5).

Table 6.5. Determination of the Relative Criterion Weight

	Thematic layers										**Total value**	**Eigenvector**	**Factor weight** (%)
	1	2	3	4	5	6	7	8	9	10			
Elevation	0.07	0.07	0.15	0.18	0.05	0.06	0.15	0.15	0.04	0.16	1.05	0.11	11.0
Slope	0.07	0.07	0.15	0.11	0.05	0.06	0.15	0.15	0.04	0.09	0.92	0.09	9.0
Distance to surface water	0.02	0.02	0.05	0.11	0.05	0.06	0.05	0.05	0.04	0.09	0.54	0.05	5.0
Distance from roads	0.01	0.02	0.02	0.04	0.05	0.15	0.02	0.02	0.02	0.09	0.43	0.04	4.0
Vegetation	0.21	0.20	0.15	0.11	0.15	0.10	0.15	0.15	0.33	0.09	1.62	0.16	16.0
Distance from protected areas	0.35	0.34	0.24	0.07	0.45	0.30	0.24	0.24	0.33	0.16	2.71	0.27	27.0
Temperature	0.02	0.02	0.05	0.11	0.05	0.06	0.05	0.05	0.04	0.09	0.54	0.05	5.0
Rainfall	0.02	0.02	0.05	0.11	0.05	0.06	0.05	0.05	0.04	0.09	0.54	0.05	5.0
Distance to historical and cultural sites	0.21	0.20	0.15	0.18	0.05	0.10	0.15	0.15	0.11	0.09	1.38	0.14	14.0
Density of population	0.01	0.02	0.02	0.01	0.05	0.06	0.02	0.02	0.04	0.03	0.27	0.03	3.0

Note: 1- Elevation; 2- Slope; 3- Distance to surface water; 4- Distance from roads; 5- Vegetation; 6- Distance from protected areas; 7- Temperature; 8- Rainfall; 9- Distance to historical and cultural sites; 10- Density of population.

In addition, calculating the Consistency Ratio (CR) is crucial to ensuring the logical consistency of the pairwise comparison matrix (Oinam et al., 2024; Patel and Anuragi, 2024). The following equation (Eq 3) is used to calculate the Consistency Ratio (CR) (Saaty, 1980):

$$CR = \frac{CI}{RI} \quad (3)$$

$$CI = \frac{\lambda \max - 1}{n-1} \quad (4)$$

$$RI = \frac{CI_1 + CI_2 + \ldots + CI_n}{n} \quad (5)$$

$$\lambda max = \frac{1}{n} * \left(\frac{\sum_{n=1}^{n} W_{1n}}{W1} + \frac{\sum_{n=2}^{n} W_{2n}}{W2} + \cdots + \frac{\sum_{n=1}^{n} W_{nn}}{Wn}\right) \quad (6)$$

(3), (4), (5) and (6) where:

CR: Consistency Ratio;

CI: Consistency Index;

RI: Random Index;

λmax: Principal Eigenvalue of the matrix;

n: number of factors.

Consistent weights should have a CR value less than 0.10; otherwise, weights should be re-evaluated (Saaty, 1980). In this study, the consistency ratio is found 0.09 (CR<0.10, λmax = 11.26, n = 10, RI = 0.18, CI = 0.14). This demonstrates that the pairwise matrix comparison yields a reasonable level of consistency (Table 6.6). The AHP method used here has thus been found to be quite accurate in predicting potential ecotourism sites in the BTT region.

Table 6.6. Determination of the Consistency Ratio

Indicators	Value
Number of comparisons	45
Consistency index (CI)	0.14
Random index (RI)	0.18
Consistency Ratio (CR)	0.09
Principal eigenvalue (λmax)	11.26

Mapping for Ecotourism Potential

Once the standardized and weighted layers were prepared, they were overlaid to generate a composite map representing the suitability of different areas for ecotourism development. The Weighted Overlay technique in ArcGIS 10.8 software was used to determine the suitability levels by integrating the assigned weights of each criterion (thematic layer). Applying this tool, the Binh-Tri-Thien (BTT) region was classified into five levels of ecotourism suitability. Thus, five types of areas were distinguished: 1) highly suitable; 2) suitable; 3) moderately suitable; 4) marginally suitable; and 5) least suitable (Figure 6.12).

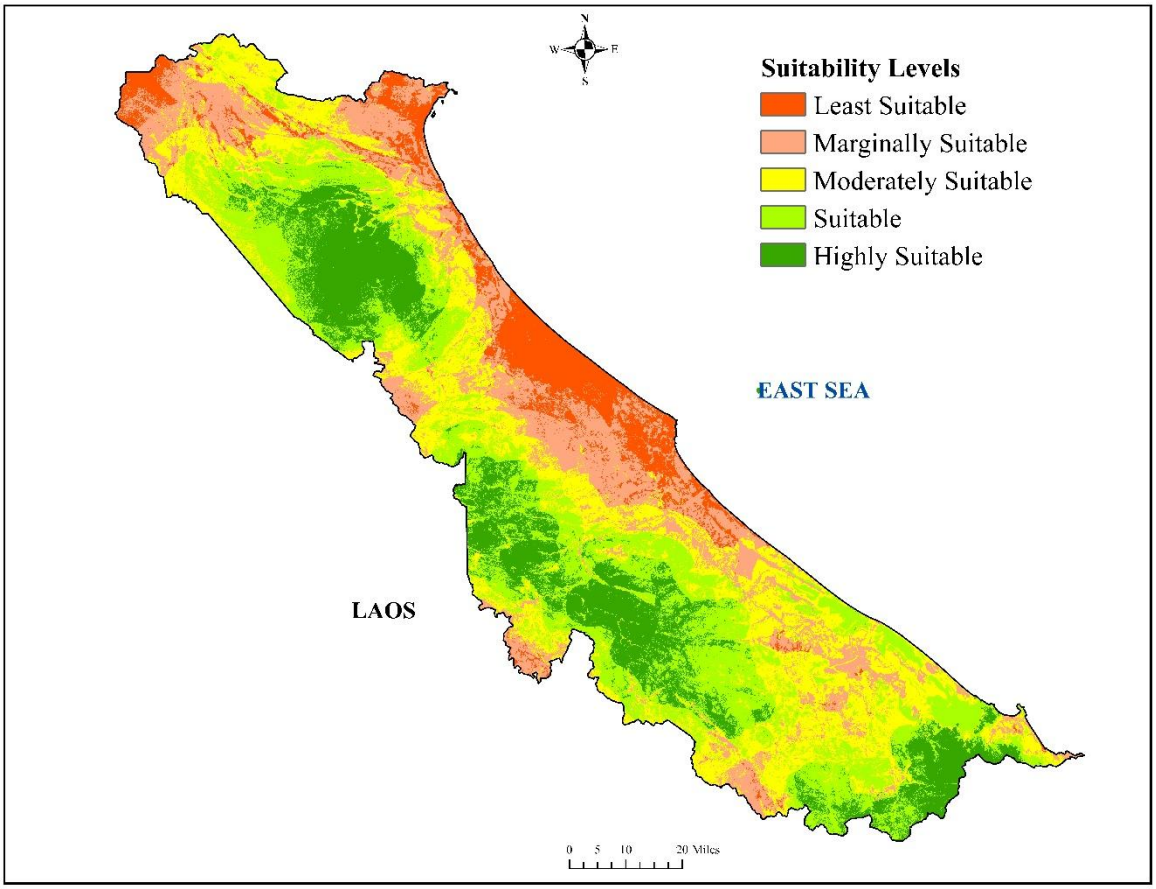

Figure 6.12. Suitability Levels in the Binh-Tri-Thien Region

6.1.2. Ecotourism Potential Assessment

The analysis results indicate that areas with 'highly suitable' and 'suitable' levels account for 44.7% of the total area (Table 6.7). These areas are primarily concentrated in national parks, nature reserves, and wetland reserves, characterized by diverse terrain, attractive landscapes, and minimal human impact, making them highly favorable for ecotourism development. Meanwhile, 'moderately suitable' areas cover 26.3% of the region – located in the western and southwestern parts of the region, with vegetation primarily consisting of annual crops and

secondary forests. Conversely, areas with ‘marginally suitable’ and ‘least suitable’ (29% of the total area) mainly consist of plains, urban zones, and agricultural lands, where natural resources are limited and significantly affected by economic and social activities.

Table 6.7. Classification of Suitability in the Binh-Tri-Thien Region

Sustainability levels	**Area** (hectares)	**Percent of total area**
Least suitable	162,219	9.2
Marginally suitable	349,003	19.8
Moderately suitable	464,659	26.3
Suitable	469,280	26.6
Highly suitable	319,546	18.1

The following analysis primarily focuses on highly suitable and suitable areas because they present the greatest potential for ecotourism development. These sub-regions offer well-preserved natural ecosystems, making them ideal for conservation-focused tourism while ensuring minimal environmental degradation. Moreover, prioritizing these areas allows for the effective allocation of resources to support ecotourism initiatives, enhancing economic opportunities for local communities while maintaining ecological integrity.

Highly Suitable Areas

A total of 18.1% of the BTT region has been identified as highly suitable for ecotourism development. The areas are primarily concentrated within national parks and nature reserves, where pristine ecosystems, diverse landscapes, and minimal human disturbances create optimal conditions for sustainable tourism.

Such areas are characterized by a combination of favorable environmental and spatial factors that support both conservation goals and visitor experience. These regions are typically situated at high elevations, where the climate is cooler and the landscapes more scenic, offering panoramic views that enhance the attractiveness of the destination. In tropical monsoon regions like Vietnam, such altitudinal advantages contribute significantly to the comfort of tourists while also supporting rich and diverse ecosystems.

The highly suitable areas also feature low slope gradients, which provide safe conditions for tourists and allow for the development of essential ecotourism infrastructure such as trails, signage, and rest stops. Low slopes help minimize soil erosion and reduce the risk of landslides, contributing to environmental stability. Furthermore, highly suitable ecotourism sites are often located within 5 kilometers of surface water bodies such as rivers, lakes, or waterfalls. These natural water features not only add to the scenic beauty but also

offer a variety of recreational opportunities, including boating, swimming, and nature observation, which are essential for ecotourism.

Vegetation cover in these areas is dominated by natural forests, which serve as critical habitats for a wide range of flora and fauna, including rare and endangered species. This makes such areas highly attractive for nature-based tourism and wildlife conservation education. In addition, proximity to protected areas such as national parks or nature reserves enhances ecotourism potential due to the existing conservation frameworks and basic supporting infrastructure for ecotourism management.

Climatic conditions in highly suitable areas are also favorable, with annual average temperatures ranging between 16°C and 19°C, which provide a comfortable environment for outdoor activities. These regions also receive relatively low annual rainfall, minimizing weather-related disruptions such as flooding or slippery trails that can hinder tourism operations. Importantly, their distance from major roads helps preserve natural tranquility by reducing exposure to noise, air pollution, and urban encroachment.

In terms of cultural integration, highly suitable sites are often located within 10 kilometers of historical or cultural landmarks, allowing tourists to experience both natural and cultural heritage in a single visit. Lastly, population density in these areas is typically low, which ensures minimal human disturbance and land-use conflict, thereby preserving the area's ecological and cultural integrity.

The following key sites exhibit the highest potential for ecotourism development (all of them are located within highly suitable areas):

1) Phong Nha-Ke Bang National Park: The park is a UNESCO World Heritage Site renowned for its extensive cave system, dense tropical forests, and exceptional biodiversity (Ly and Xiao, 2016).
2) Bach Ma National Park: This park is distinguished by its mild climate, impressive mountain landscapes, and rich flora and fauna (An, Hung, and Dung, 2024).
3) Dakrong Nature Reserve: This site is characterized by its rugged mountainous terrain, tropical rainforest ecosystem, and high biodiversity (Cai et al., 2020).
4) Bac Huong Hoa Nature Reserve: The destination is not only a biodiversity hotspot but also a culturally significant area closely tied to the traditions of ethnic minority communities (Lee et al., 2019).

5) Phong Dien Nature Reserve: The area is known for its distinct forest ecosystems and exceptional wildlife diversity (Phan et al., 2024). The reserve is home to several endangered species (Tuan et al., 2017).
6) Sao La Nature Reserve: The site was established specifically to protect the critically endangered 'Saola' – one of the world's rarest large mammals, discovered only in 1992. The reserve is characterized by pristine primary forests at higher elevations and regenerating secondary forests in the lower areas (Nguyen et al., 2020).

Suitable Areas

The suitable areas account for 26.6% of the total area of the BTT region. The areas are primarily located in the buffer zones of national parks and nature reserves, creating favorable conditions for local communities to develop community-based ecotourism.

Such areas are generally situated at moderate elevations ranging from 1001 to 1500 meters, with gentle slopes between 5° and 15°, which are ideal for constructing tourism infrastructure and ensuring the safety of visitors. The moderate topography also facilitates easier access and the development of trails, resting points, and interpretive signage, supporting ecotourism activities without causing significant ecological disruption.

In terms of hydrological features, suitable areas are located within 5 to 10 kilometers from surface water sources such as rivers, lakes, and waterfalls. This proximity enhances the landscape value and allows for various water-related recreational experiences. Vegetation cover in these zones often includes grassland and plantation forests, which still support biodiversity and offer nature-based experiences, although not as rich as in primary forests.

The sites are typically found within 5 to 10 kilometers from protected areas, allowing for potential collaboration with existing conservation infrastructure and programs. Climatic conditions are also favorable, with average temperatures ranging from 20°C to 23°C and annual rainfall between 2100–2300 mm. These levels help create a pleasant and relatively stable environment for ecotourism activities throughout the year.

Accessibility is balanced, as these areas are situated 17 to 22 kilometers from major roads – far enough to avoid the negative impacts of urban encroachment but close enough to ensure manageable travel distances for tourists. Additionally, their proximity to historical and cultural sites (within 11–21 kilometers) enriches the ecotourism experience by offering both natural and cultural insights in a single itinerary.

Some notable community-based ecotourism destinations located in suitable areas include:

1) A Rem Village: Situated in the buffer zone of Phong Nha-Ke Bang National Park, this village is home to the A Rem people, one of the smallest ethnic groups in Vietnam.
2) Doong Village: A stopover on the way to Son Doong Cave, where visitors can explore the traditional lifestyle of the Bru-Van Kieu ethnic group and participate in community-based tourism activities.
3) Khe Sanh Village: A combination of historical and ecological tourism, where visitors can learn about Pa Ko ethnic culture, visit war relics, and explore mountainous landscapes.
4) Ta Puong Community Tourism Village: Closely associated with Dakrong Nature Reserve, offering opportunities for visitors to discover caves, waterfalls, and the traditional customs of the Van Kieu people.
5) A Luoi Ecotourism Village: Comprising villages such as A Nor, Hong Ha, and Hong Kim, this area develops tourism activities linked to the Ta Oi and Co Tu ethnic groups, including homestays, Zeng weaving, gong performances, trekking, and waterfall exploration.
6) A Nor Village: A prominent ecotourism destination that combines cultural experiences of the Ta Oi people with natural attractions such as stunning waterfalls, pristine forests, and trekking routes.
7) Tam Giang-Cau Hai Lagoon – the largest lagoon ecosystem in Southeast Asia, which holds high potential for community-based ecotourism. Among these, Ngu My Thanh Village is a prime example of an ecotourism site, where visitors can engage in traditional fishing activities, explore the brackish water ecosystem, and experience the culture of local fishermen.

Moderately Suitable Areas

The areas account for approximately 26.3% of the total land area in the BTT region. They are predominantly located in the western and southwestern parts of the region, where the terrain transitions from lowland plains to gently undulating hills. Vegetation cover in the areas is typically dominated by annual crops and secondary forest growth. While less pristine than primary forests, these landscapes can still support biodiversity and serve as spaces for agro-ecotourism or reforestation-linked tourism. Moreover, their location within 11 to 16 kilometers of protected areas allows for the creation of buffer ecotourism zones that can relieve pressure on core conservation sites.

Despite lacking the dramatic natural features of highly suitable zones, these moderately suitable areas offer important opportunities for diversified ecotourism development. Their proximity to prominent cultural heritage sites – such as the Quang Tri Citadel, the Hue Imperial City, and Phuoc Tich Ancient Village – enables the integration of cultural and natural tourism experiences. By combining historical exploration with nature-based activities, these areas can support hybrid ecotourism models that emphasize education, heritage preservation, and local participation.

With adequate investment, planning, and community engagement, moderately suitable areas have the potential to function as secondary ecotourism hubs. These types of sites can diversify the regional tourism landscape, alleviate overuse of core ecotourism zones, and foster a more balanced and sustainable tourism development strategy across the BTT region.

Marginally Suitable and Least Suitable Areas

The areas together comprise approximately 29% of the total area of the BTT region. They are predominantly located in coastal plains, urbanized zones, and regions with intensive land use, where both natural constraints and human-induced alterations significantly limit their potential for sustainable ecotourism development.

From a topographic and environmental standpoint, these areas are characterized by low elevations. Vegetation cover in these zones is either bare land, water surfaces (e.g., fish ponds), or built-up urban land. Such land uses indicate a high degree of ecosystem modification and low levels of biodiversity, particularly in areas dominated by industrial agriculture or aquaculture. Such factors diminish the ecological integrity required for core ecotourism experiences such as wildlife observation, forest trekking, or habitat conservation.

Marginally and least suitable areas are typically located in close proximity to roads, and near densely populated zones. These include major urban centers such as Hue, Dong Hoi, and Dong Ha. While such cities function as critical nodes for transportation and cultural tourism, their limited access to natural wilderness significantly constrains their value for ecotourism. Similarly, coastal plains subjected to intensive farming and aquacultural practices have undergone substantial environmental transformation, limiting native biodiversity and disrupting natural landscapes.

Given these environmental and anthropogenic constraints, the development of ecotourism in marginall and least suitable areas is largely impractical. Instead, strategic regional planning should redirect development priorities toward urban expansion, improvement of public services, and promotion of sustainable agriculture. While these areas

may not support conventional ecotourism models, they still hold potential for alternative tourism approaches, including agro-tourism, cultural tourism.

6.2. Selection of Case Studies for Field Research

The selection of case study sites was primarily based on the results of the GIS-based suitability assessment, which identified areas with the highest potential for ecotourism development in the Binh-Tri-Thien (BTT) region. This spatially grounded approach ensured that the chosen locations were situated within zones classified as 'highly suitable' or 'suitable,' thereby strengthening the scientific foundation and relevance of the field research.

In addition to spatial suitability, the representativeness of each site was carefully considered to capture the diversity of ecotourism dynamics across the region. This included evaluating ecological characteristics, socio-economic contexts, and the typology of ecotourism initiatives present at each location. Such representativeness was essential for providing a comprehensive and balanced perspective on ecotourism development in the region.

Moreover, given the large geographic scope of the BTT region and the limited time available for fieldwork, it was necessary to select case study sites that not only aligned with the suitability mapping results but also reflected the variety of ecotourism activities found in different ecological and cultural settings. Therefore, this subchapter focuses on two main types of ecotourism sites: the national parks and community-based ecotourism development areas. Specifically, Phong Nha-Ke Bang National Park and Bach Ma National Park were chosen because they represent significant natural reserves with unique ecosystems, offering high value in both conservation and ecotourism development. Such national parks not only attract visitors with their majestic natural landscapes but also serve as exemplary cases of ecosystem protection in the context of sustainable tourism development. Meanwhile, A Nor Waterfall and Ngu My Thanh Village were selected to represent community-based ecotourism development areas. These specific locations where local communities play a central role in environmental protection and tourism development. Thus, the selection of the aforementioned four sites (Figure 6.13) not only allows for a focus on key representative locations but also provides a comprehensive view of the current state and potential for ecotourism development in the BTT region. Additionally, concentrating the research on the chosen four representative destinations helps conserve time and resources while ensuring the depth of the study.

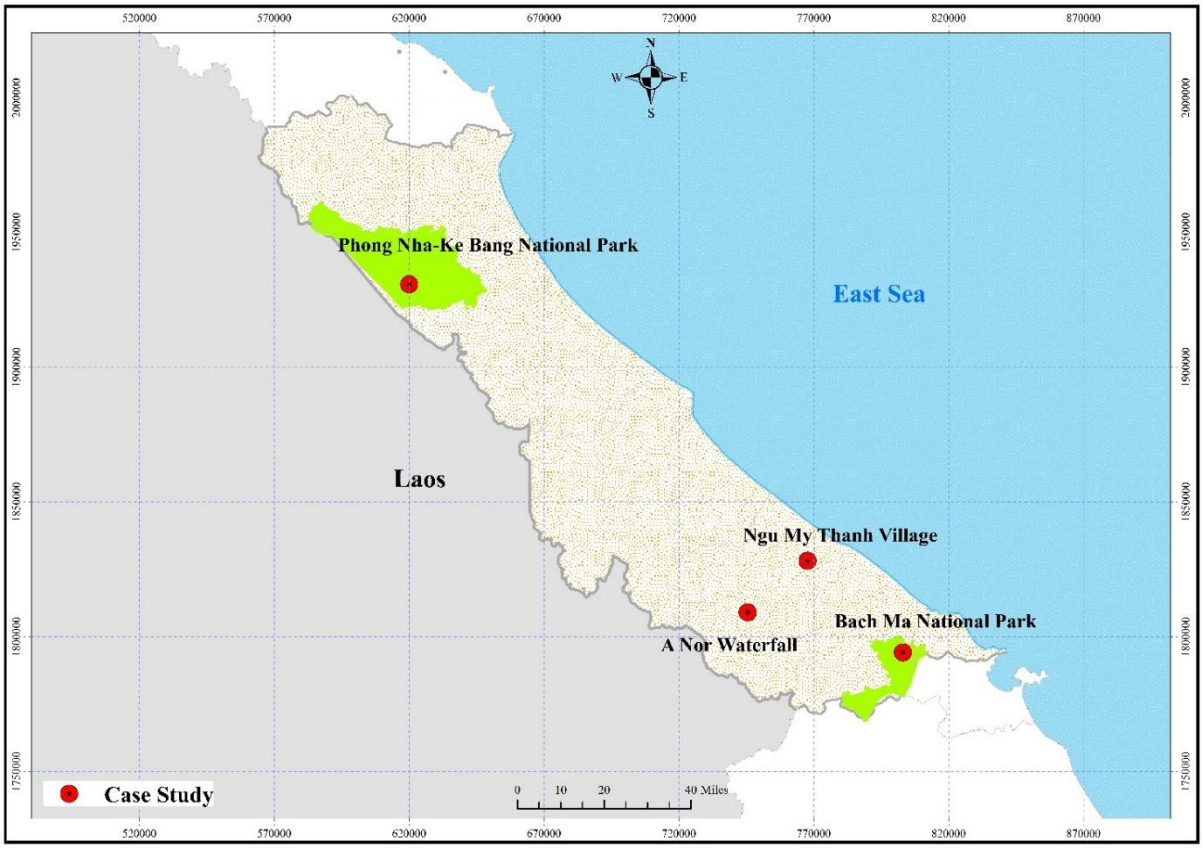

Figure 6.13. Location of Selected Case Studies

Phong Nha-Ke Bang National Park

The national park under the management of the Quang Binh Provincial People's Committee, was inscribed as a UNESCO World Natural Heritage Site under Criterion VIII (Geological and geomorphological value, July 2003) and Criteria IX and X (Ecology and biodiversity, July 2015) (UNESCO, 2020). The park encompasses an area of 123,326 hectares and is divided into three subdivisions: strictly protected (100,296 hectares), ecological restoration (19,619 hectares), and administration and services (3,411 hectares). Karst terrain dominates two-thirds of the park, with elevations ranging from 300 to 1,100 meters. The cave system holds exceptional global significance due to its intact geological and geomorphological features, shaped by long-term tectonic processes of the Earth's crust. Notable examples include Phong Nha Cave, Tien Son Cave, Thien Duong Cave, Son Doong Cave, and Hoa Huong Cave (Dinh Duc, 2022). The park is further distinguished by its rich biodiversity, with 2,951 plant species (including 112 species listed on the Vietnam Red Book 2007 and 121 species listed on the IUCN Red List-2011) and 1,394 animal species (with 46 species listed on the Vietnam Red Book and 55 species listed on the IUCN-2016 Red List). The Phong Nha-Ke Bang National Park offers five official tourist products (Table 6.8). They are located along the particular trails.

Table 6.8. Ecotourism Products at the Phong Nha-Ke Bang National Park

Mining unit	**Trails**	**Time of tour**	**Price** (USD/person)
Jungle Boss company	Dai A Cave, Pygmy Cave	3 days 2 nights	379
	Hama Da – Tra Ang cave	one-day trip	64
		2 days 1 night	182
	Sinh Ton valley – Thuy Cung cave	one-day trip	6
		2 days 1 night	183
Chua Me Dat company	Rao Thuong – Hang En	2 days 1 night	293
	Va cave, Nuoc Nut cave	one-day trip	97
		2 days 1 night	316
	Son Doong cave	5 days 4 nights	3,000
Truong Thinh group	Thien Duong cave	one-day trip	10
	Thien Duong cave and Gieng Troi route	one-day trip	88
		2 days 1night	180
Rescue Cente	The Botanical Garden	one-day trip	2
Tourist Center of the Phong Nha-Ke Bang National Park	Xuyen Son lake and Phong Nha cave	one-day trip	66
	Road 20 – Quyet Thang	one-day trip	35
	Mooc spring	one-day trip	7
	Chay river – Hang Toi cave	one-day trip	17
	Tien Son cave – A Fairyland	one-day trip	3
	Phong Nha cave	one-day trip	6

Bach Ma National Park

The national park officially established in 1991, initially encompassed 22,031 hectares (Van et al., 2016). By 2008, the park's area was adjusted and expanded to 37,487 hectares. The park headquarters are located in Phu Loc district, approximately 40 kilometers from Hue City. The park primarily features two closed evergreen tropical rainforest types: one below 900 meters in altitude and another, less disturbed by human intervention, above 900 meters. Bach Ma National Park is distinguished by its high biodiversity, encompassing 2,373 species of fungi and plants (including 73 rare and endangered species listed in the Vietnam Red Book and 20 species on the IUCN Red List). The park also boasts 1,715 animal species, with 70 species listed in the Vietnam Red Book and 15 species endemic to Vietnam (Hong and Saizen, 2019). The Bach Ma National Park offers tourist products listed in Table 6.9.

Table 6.9. Ecotourism Products at the Bach Ma National Park

Mining unit	**Trails**	**Time of tour**	**Price** (USD/person)
Tourist Center of the Bach Ma National Park	Hai Vong Dai trail	one-day trip	22
	Self-discovery nature trail		
	Rhododendron trail		
	Five Lakes trail		
	Cho Den trail		
	Missing In Action Trail		
	Truoi lake – Truc Lam Zen monastery		
	Km8 – Tri Sao – Ho Truoi trail		
	Tour Hue City – Bach Ma	2 days 1 night	116
		one-day trip	28
	Cycling tour to conquer Bach Ma peak	one-day trip	40
Eagle travel company	Bach Ma village	2 days 1 night	61

A Nor Waterfall

The waterfall situated in the Hong Kim Commune, A Luoi District, Hue City, was recognized as a community-based ecotourism destination by the People's Committee of Hue City (PCTTHP, 2020a). This unique waterfall exemplifies a model of community-based ecotourism, offering a blend of ecotourism experiences, relaxation opportunities, and immersion in the rich cultural traditions of the Pa Co ethnic minority. The A Nor Waterfall boasts an enduring repertoire of cultural practices. Visitors can experience festivals like the A Rieu Piing Festival, the A Da festival, and the A Rieu Car Festival, traditional folk songs, daily routines including the 'fairy bathing festival' and fish catching, and participate in folk games like pole climbing, tug-of-war, and stilts. A natural highlight of the area is the A Nor Waterfall, featuring three cascading waterfalls reaching up to 120 meters in height. These waterfalls provide a refreshing escape for tourists who can enjoy swimming, exploring the surrounding mountains and forests, or simply relaxing amidst the natural beauty. To cater to tourist needs, the area surrounding the waterfall offers 24 stalls serving food and drinks (PCTTHP, 2020a). The A Nor Waterfall offers tourist products listed in Table 6.10.

Table 6.10. Ecotourism Products at the A Nor Waterfall

Mining unit	Services	Price
Hong Kim community self-management model (Cooperative)	Homestay	5 USD/night
	Community exchange campfire performance	40 USD/group
	Reenactment of pounding rice and winnowing rice	13 USD/group
	Reenactment of making traditional A Quat cake of Pa Ko ethnic minority	13 USD/group
	Hair washing with medicinal herbs at A Nor Waterfall	2 USD/person
	Experience the service 'A day as a Pa Co'	18 USD/person
	Teeth steaming with medicinal herbs	2 USD/person
	Traditional cuisine of Pa Ko ethnic minority	6 USD/person

Ngu My Thanh Village

The site is among the poorest communities in the BTT region (Phuong Vy et al., 2024). A small fishing village with more than 200 households has become accustomed to life on the water, where boats and sampans are considered both home and a means of livelihood. Since 1985, the aquatic community has been resettled on land within the Tam Giang Lagoon system, adjacent to the agricultural areas of the Ngu My Thanh village. Residents primarily sustain their livelihoods through aquaculture, fishing, and tourism services on the Tam Giang Lagoon, with fishing being the main occupation for most villagers. Today, Ngu My Thanh is also renowned as a 'mural village', featuring wall paintings that vividly illustrate the daily lives of its residents and their activities on the lagoon. Consequently, tourism has emerged as a potential source of livelihood for households with stable financial conditions. Currently, seven households are actively involved in community-based ecotourism activities. The village located in Quang Loi Commune, Quang Dien District, Hue City, was recently recognized as a community ecotourism site by the People's Committee of Hue City (PCTTHP, 2022b). The Ngu My Thanh village offers tourist products listed in Table 6.11.

Table 6.11. Ecotourism Products at the Ngu My Thanh Village

Mining unit	Services	Price
Quang Loi community self-management model (Cooperative)	Ngu My Thanh floating seafood market	20 USD/person
	Ngu My Thanh mural village	50 USD/group
	Visiting the mangrove forest	2 USD/person
	'A day as a farmer' tour: trekking, netting, netting, fishing, bamboo and rattan weaving, harvesting agricultural products	12 USD/group
	Hand-rowing	2 USD/person

In summary, four case study sites are selected to represent the two main models of ecotourism in the BTT region. Phong Nha-Ke Bang National Park and Bach Ma National Park illustrate national park-based ecotourism, characterized by state-managed conservation

areas. In contrast, A Nor Waterfall and Ngu My Thanh Village represent community-based ecotourism, where local communities play a central role in both environmental protection and tourism development.

After identifying these representative sites, the next phase of the research involves conducting on-site field investigations. The methods and findings of this fieldwork are presented in the following subchapter.

6.3. Methodology of Field Study

The collection and analysis of primary data play a pivotal role in studying the current state of ecotourism in the Binh-Tri-Thien (BTT) region, because it provides direct, accurate, and up-to-date information about tourists demands, behaviors, and the impacts of tourism activities on the environment and local communities. In order to achieve above objective, the subchapter presents the methodological assumptions of the research process, including its stages and applied research methods.

6.3.1. Research Stages

The selection of the summer season (July, August, September) for field research in the BTT region was based on several important factors. First, summer in Vietnam coincided with the holiday period in Poland, which facilitated the scheduling of research activities. Second, it was also the peak tourist season in the BTT region, allowing author to easily access and survey tourists. Moreover, the warm and sunny weather was conducive to outdoor activities and transportation. Finally, conducting research during the peak season enabled the collection of a larger and more diverse primary dataset, leading to more accurate and comprehensive conclusions about the state of ecotourism in the region. The whole process of field research included a pilot study conducted in the summer of 2022, a main field research carried out in the summer of 2023, and a supplementary field study conducted in the summer of 2024.

Pilot Field Study

A pilot study was conducted in summer 2022 (in August and September) at Bach Ma National Park to evaluate research methods, data collection tools, and procedures before full implementation of the main field research. The pilot survey questionnaire was developed based on relevant prior research. Figure 6.14 outlines an implemented pilot study process. It involved developing questionnaires, identify participants, testing questionnaires, analyzing results, and finalizing questionnaires. This process was sequential with each stage contributing to the overall success of the pilot study. The pilot study yielded 91 completed

questionnaires: 53 from tourists (37 domestic, 16 international) and 36 from local community representatives (5 from the park management staff, 7 from tourism businesses, and 24 from community members).

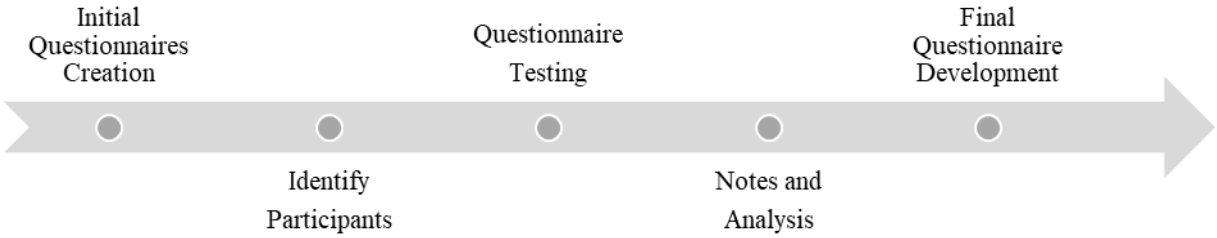

Figure 6.14. Pilot Field Process in the Binh-Tri-Thien Region

Pilot studies were crucial for identifying and addressing potential issues that could impact the main study's effectiveness. In this instance, unforeseen circumstances such as the COVID-19 pandemic and natural disasters (landslides affecting access routes to the destination) resulted in the Bach Ma National Park's closure to tourists from July to August. In addition, feedback from participants indicated that the survey questionnaire was overly complex or contained unclear questions, potentially compromising data quality. Addressing these issues during the pilot phase ensured a smoother main study and the collection of higher quality data.

Main Field Study

Based on evaluating the feasibility and effectiveness of the pilot research design, the author collaborated with colleagues (5 people) at the Department of Geography, University of Education, Hue University to conduct main surveys. The main research trip was held from July to September 2023 at four tourist destinations: Bach Ma National Park, Phong Nha-Ke Bang National Park, A Nor Waterfall and Ngu My Thanh Village (Appendix C). All of them were presented in more detail in the previou subchapter.

The primary objective of the 2023 field study was to develop a comprehensive understanding of the ecotourism landscape in the BTT region. Through the collection of the surveys of tourists, and interviews with management staff, the study aimed to assess tourist satisfaction levels, identify existing challenges and development potentials, and establish detailed tourist profiles. The main research produced 673 completed questionnaires (491 from tourists and 182 from local communities), 13 in-depth interviews with managers, and relevant secondary data (official documents and reports issued by local tourism departments and provincial People's Committees) on ecotourism development in the BTT region.

Supplementary Field Study

Following the pilot field study in 2022 and the main research in 2023, a supplementary research was conducted in August 2024. This study focused on conducting interviews with households and businesses surrounding four ecotourism sites to gain a deeper understanding of the impact of tourism on local communities and to complement the previously collected data. The result of the supplementary research was the completion of 22 in-depth interviews with local community members. During the interviews, all information were recorded to accurately preserve the respondents' statements, and notes were taken to quickly summarize and document key points. In addition, the interviews were photographed to capture the context and environment, providing a more comprehensive view of the factors related to the interviews and the actual conditions of the study area.

6.3.2. Methods

Due to the high heterogeneity of the scope of research (the diagnosis and assessment of ecotourism in the Binh-Tri-Thien region), it was planned that the methodological approach of triangulation would be used. Triangulation refers to the use of multiple research methods to study the same phenomenon, allowing for its more comprehensive and in-depth understanding (Decrop, 1999; Koc and Boz, 2014). It is widely recognized in social science as a key strategy for enhancing the credibility and validity of research findings.

In this study, primary data was collected through questionnaires, in-depth interviews with relevant ecotourism stakeholders, and field observations at four destinations. The collected quantitative data were analyzed using descriptive statistics; test for reliability and validity; and the partial least squares structural equation modeling (PLS-SEM) to answer research questions and test hypotheses. Moreover, qualitative data were also analyzed through content analysis, with recurring themes and patterns identified to provide deeper insights into important issues. As a result, the study has developed a comprehensive picture of ecotourism in the chosen local areas, identifying key influencing factors and issues that require addressing.

Questionnaire Design

Primary data were collected using questionnaires administered on a large scale. Survey forms were delivered to respondents by direct contact. The forms were designed for two different target groups including: 1) tourists and 2) local communities. The questionnaires were designed with a majority of closed questions and a 5-point Likert scale to obtain reliable

results. In addition, the forms were also designed with multiple choice and open-ended questions to collect suggestions for solutions from tourists and the local community. Survey form for tourists were prepared in both English and Vietnamese versions with identical content. The questionnaires applied in the research are provided in Appendix A as supplementary materials.

The Survey Process

Figure 6.15 briefly presents the survey process at tourist destinations. Prior to conducting the survey, the author presented the research proposal to relevant management officials for approval and support in conducting the survey at tourist destinations. For tourists, the survey was administered while they were experiencing tourism services or during their rest periods at designated areas. For the local community, surveys were conducted at the offices of local officials or at the residents' homes. Initially, the author introduced themselves and the purpose of the survey, emphasizing that only adults (aged 18 and above) were eligible to participate. This was also highlighted at the beginning of the questionnaires. Following the introduction, self-administered questionnaires were distributed to respondents, and a suitable time frame was set (recommended completion within 15–20 minutes) to collect the completed questionnaires. Throughout the distribution and collection process, the author assisted respondents in understanding the questions and their format if needed. Finally, the completed questionnaires were collected. The surveys were then coarsely filtered, digitized and processed with the assistance of the Excel, SPSS and SmartPLS3 software.

The study also applies and tests online surveys. However, due to safety and personal security issues on social networks, this method was not successful.

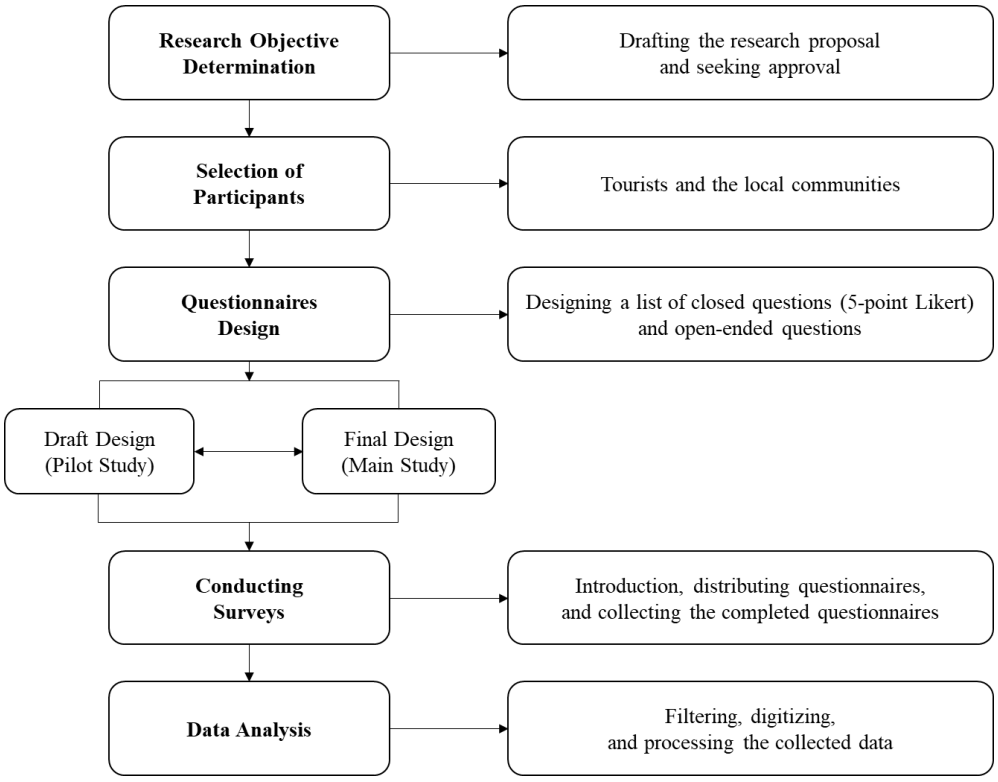

Figure 6.15. Survey Process at the Selected Destinations in the Binh-Tri-Thien Region

Descriptive Analysis

The data collection process is the first step in conducting quantitative research, followed by data analysis, interpretation, and presentation (Patton, 1994). Descriptive analysis were performed to generally describe the sample, including the socio-demographic profile of tourists and local communities (including among others: age group, gender, education level, monthly income); tourist trip characteristics; the level of satisfaction of tourists with types of services and infrastructure systems; the impact of ecotourism on the local economy, society and environment. The respondents' statistical data, which are represented by frequency and percentages, were calculated using the SPSS Statistics for Windows, version 26 (IBM Corp., Armonk, NY, United States) and Microsoft Excel (2016) spreadsheet.

Proposed Research Model Analysis (Partial Least Squares Structural Equation Modeling)

Based on theories and empirical research, a research model is proposed to explore the factors influencing visitor satisfaction at the BTT region (Figure 6.16). Specifically, the study employed eight independent variables (34 observed variables) and a dependent variable (3 observed variables). Independent variables are the factors that are presumed to influence or predict changes in dependent variable. In this study, they represent various factors that may affect tourists' satisfaction in the BTT region. Meanwhile, the dependent variable is the outcome or result that the research seeks to explain – tourist satisfaction.

Each of these variables (independent and dependent variables) was measured using observed variables – which are specific, measurable indicators (i.e., survey questions or assessment items) used to capture the underlying concept.

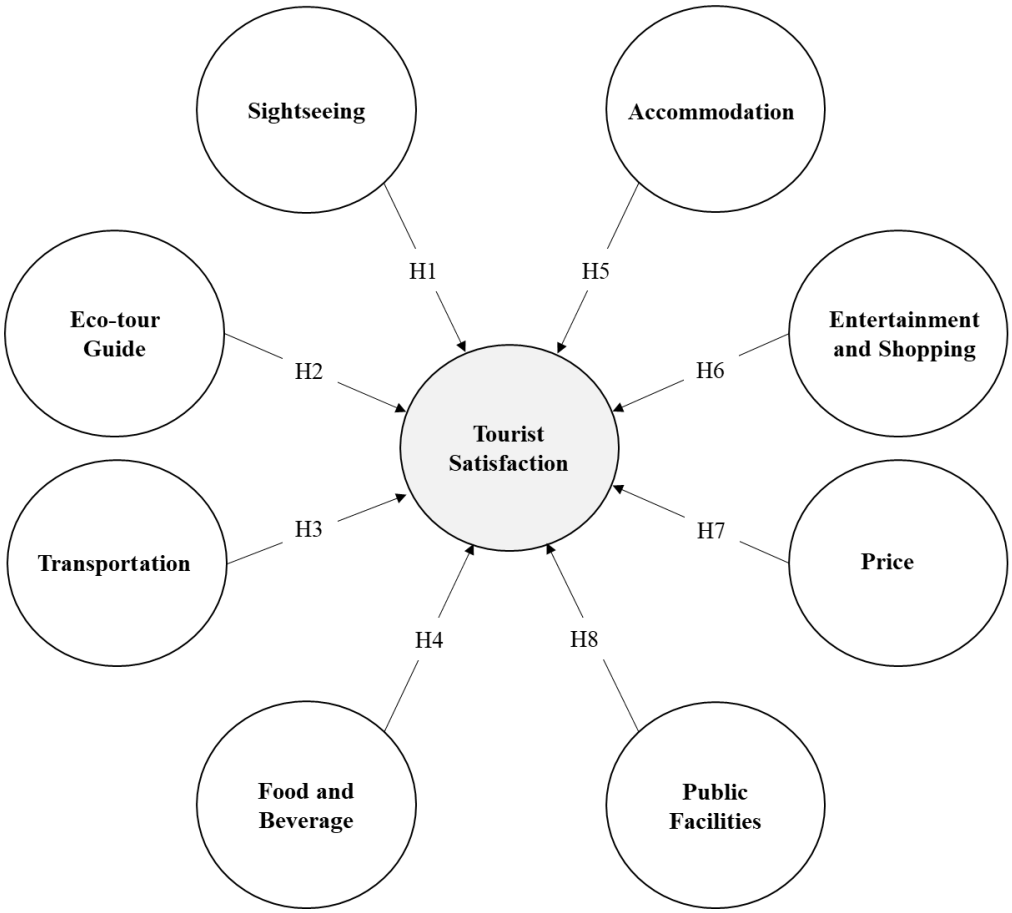

Figure 6.16. Proposed Research Model

This study proposes eight core hypotheses (H1–H8), each suggesting that the corresponding independent variable positively influences tourist satisfaction in the BTT region. These hypotheses were developed based on an extensive review of prior studies (Mandić et al., 2018; Giao et al., 2021; Baloch et al., 2023; An et al., 2024) related to factors affecting tourist satisfaction in the context of ecotourism. In addition, insights gained from field observations and on-site surveys were used to refine the hypotheses, ensuring they are well-suited to the particular characteristics and conditions of the BTT region (Table 6.12).

Table 6.12. Research Hypotheses

Order	Hypotheses
H1	Sightseeing services positively affect tourist satisfaction in the BTT region
H2	Eco-tour guide services positively affect tourist satisfaction in the BTT region
H3	Transportation services positively affect tourist satisfaction in the BTT region
H4	Food and beverage services positively affect tourist satisfaction in the BTT region
H5	Accommodation services positively affect tourist satisfaction in the BTT region
H6	Entertainment and shopping services positively affect tourist satisfaction in the BTT region
H7	The price of services positively affects to tourist satisfaction in the BTT region
H8	Public facilities positively affect tourist satisfaction in the BTT region

In order to achieve the research objectives and test the proposed hypotheses, the study employed the PLS-SEM method. According to Hair et al (2014), the initial step involved analyzing the measurement model, followed by examining the structural relationships between variables. Partial least squares structural equation modeling is an alternative to traditional structural equation modeling that can be applied to model the relationships of causality among the variables (Wold, 2005). The choice of the PLS-SEM was justified by the following reasons.

1) The PLS-SEM is primarily focused on explaining the variance in the dependent variable. Therefore, it was more suitable than the Covariance-Based Structural Equation Modeling when researchers aimed to emphasize the predictive power of the dependent variable (Wold, 2005). In this study, tourist satisfaction was explained by various components/factors, making the PLS-SEM an appropriate choice for analysis.
2) The PLS-SEM offered a relative advantage (compared to the Covariance-Based Structural Equation Modeling) as it did not require normally distributed data. Additionally, the PLS-SEM could analyze models with multiple latent variables measured by various indicators. Moreover, the PLS-SEM allowed for the simultaneous estimation of both the measurement model and the structural model, avoiding potential biases or inconsistencies in estimation (Vinzi et al., 2010).

In the PLS-SEM research, determining an appropriate sample size is essential to ensure the reliability and validity of the analysis results. According to the '10-times rule', the minimum sample size should be based on the independent variable with the largest number of measurement indicators (Kock and Hadaya, 2018). In this study, the independent variable 'public facilities' includes nine observed indicators, requiring at least 90 respondents. Additionally, Hair et al. (2014) recommend that for studies of moderate complexity, an optimal sample size typically ranges between 150 and 200 cases. Through main field study,

after removing incomplete and invalid responses, a total of 491 valid questionnaires were retained. The collected data were digitized and analyzed using SmartPLS software.

Indepth-Interview

Semi-structured interviews are a qualitative data collection method that combines the flexibility of unstructured interviews and the systematic nature of structured interviews. According to Adeoye-Olatunde and Olenik (2021), semi-structured interviews use a standard set of questions, but the interviewer can adapt and expand the questions based on the responses of the participants. This approach allows the interviewer to explore deeper insights without being constrained by a fixed format (Magaldi and Berler, 2020).

The goal of this method is to gather perspectives, experiences, and knowledge from those stakeholders who are directly involved in ecotourism development in the BTT region. In this type of interview, the author proposed a list of main topics to be discussed, but without specific questions. Based on prepared topics, open-ended questions were developed to explore various aspects of ecotourism, including existing ecotourism development plans, management issues, the project's impact on local communities, and local community involvement in tourism activities. Interview questions also addressed interviewees' perceptions, participation, and attitudes towards ecotourism and current pressing issues (e.g., gender inequality, poverty, environmental pollution). In addition to in-depth interviews, the author spent considerable time engaging in informal conversations with tourists to gain a deeper understanding of the behaviors and attitudes of ecotourism participants. Semi-structured interviews were conducted with key stakeholders including local government officials, national park managers, cooperative managers, tourism business owners, and households residing near tourist destinations.

The process of conducting semi-structured interviews contains the following stages:

1) Determining research objectives: (i) develop a theoretical framework and (ii) formulate clear research questions.
2) Selecting interviewees: (i) identify key interviewee groups: local government officials, national park managers, cooperative managers, tourism business owners, and households; (ii) determine an appropriate sample size for each group based on the research scale and accessibility; and (iii) set a timeline for conducting interviews.
3) Questionnaire design: (i) develop a list of main topics and (ii) create a list of open-ended questions.

4) Conducting interviews: (i) thank participants and provide basic information about the research; (ii) create a friendly environment and respect the opinions of participants; (iii) ask open-ended questions to encourage participants to share information freely; (iv) active listening: pay attention to both the content and the way participants express themselves; (v) take detailed notes: record key points, direct quotes, and important observations; and (vi) use a recording device and take photos with participants' consent to ensure data accuracy.
5) Data analysis: (i) transcription: convert recorded data into text; (ii) content analysis: identify prominent themes and patterns, compare and contrast data from different groups of interviewees; and (iii) synthesize results.

A total of 35 interviews were conducted through two field studies in 2023 and 2024. Table 6.13 presents a list of interviewees whose qualifications and willingness to provide data are crucial for achieving most of the objectives of the field research. Moreover, these information providers are also recognized as key stakeholders in ecotourism.

Table 6.13. List of Interviewees

Groups	**Destinations**	**Quantity** (people)
Local government officials	Phong Nha-Ke Bang, Bach Ma, A Nor, Ngu My Thanh	4
National park managers	Phong Nha-Ke Bang, Bach Ma	5
Cooperative managers	A Nor, Ngu My Thanh	4
Tourism business owners	Phong Nha-Ke Bang, Bach Ma, A Nor, Ngu My Thanh	7
Households	Phong Nha-Ke Bang, Bach Ma, A Nor, Ngu My Thanh	15

Direct Observation

The direct observation method focuses on recording cultural, environmental, and infrastructural characteristics in the local area, aiming to provide a realistic assessment of the potential and challenges in the development of ecotourism in the BTT region. This investigation employed direct observation as a tool to validate and strengthen the triangulation process. Another strength of this method is its ability to capture varying perceptions and understandings of the interaction between local residents at tourist sites who are not directly involved in tourism activities and those who participate in them. Therefore, observation has helped identify potential issues and conflicts that may arise (Ribeiro and Foemmel, 2012; Seaman, 2008). Several issues observed by the researcher during the field study are presented in Table 6.14.

Table 6.14. Topics of Direct Observation

Topics	Interpretation
Characteristics of the local community at tourist sites	Observation of the cultural, traditional, and spiritual practices of local residents, highlighting unique customs, rituals, and beliefs that influence their interaction with tourism
Behavior of local people towards tourists	Observation of how local residents engage with tourists, including hospitality practices, etiquette, and any existing rules or guidelines regarding appropriate attire and conduct for both tourists and locals
Gender roles within the community	Observation of how gender influences roles and responsibilities within the community, particularly in relation to tourism-related activities, and whether there are specific gender-based expectations in tourism management or services
Events occurring during the fieldwork	Observation of any notable events or cultural activities taking place during the field study period, such as festivals, ceremonies, or community gatherings, which could have implications for ecotourism development
Physical environment surrounding the local community	Observation of the local infrastructure (e.g., housing, schools) and the condition of natural resources, including the status of the ecotourism project itself. This includes observing the maintenance of trails, visitor facilities, and any impacts on the environment caused by tourism
Working conditions and hours	Observation of the working conditions of local workers involved in tourism (e.g., tour guides, service staff), including their working hours, compensation, and job satisfaction
Problems addressed in community meetings	Observation of discussions and resolutions from community meetings concerning tourism-related issues. This includes how the community collectively addresses challenges, organizes tourism management efforts, and negotiates with external stakeholders (e.g., government, non-governmental organizations)

Furthermore, during the investigation, the researcher maintained a field journal, documenting observations and experiences. This practice allowed the researcher to revisit and reflect on the collected data, enhancing the analysis by identifying overlooked details or situations not initially noticed (Emerson, 1995).

Summary of Chapter 6

Chapter 6 is organized into three core sections: 1) an analysis and mapping of ecotourism potential; 2) the selection of fieldwork case study sites; and 3) the design and implementation of field research methodology. The results show that the mapping process involves the integration of various thematic layers into a spatial framework supported by the Analytic Hierarchy Process (AHP) and Geographic Information Systems (GIS). This approach enables the classification of areas according to their ecotourism suitability, providing a foundational spatial understanding of potential development zones across the BTT region.

Based on the outcomes of the spatial analysis, four sites (Phong Nha-Ke Bang National Park, Bach Ma National Park, A Nor Waterfall, Ngu My Thanh Village) are selected as case studies due to their position within zones evaluated as 'highly suitable' or 'suitable.' These destinations reflect diverse ecological, cultural, and community-based tourism characteristics, providing a foundation for analyzing ecotourism potential in the BTT region.

The chapter also focuses on the field study component, which takes place in three phases. Each phase serves distinct purposes, from testing data collection instruments to validating the research model and gathering in-depth stakeholder insights. The methodological framework employs a mix of quantitative and qualitative techniques, including well-structured questionnaire design, systematic surveys, descriptive statistical analysis, and model-based evaluation of hypotheses. These methods are complemented by in-depth interviews with local stakeholders and experts, offering nuanced perspectives and contextual clarity, especially on complex or underrepresented issues emerging from the survey data.

By combining spatial analysis with multi-phase field research, Chapter 6 outlines the logical progression of the empirical investigation – from a general assessment of the BTT region at a broad geographical scale (using GIS tools), through the selection of specific sites for case studies, to a detailed account of the methods applied during fieldwork and processing the data. This approach not only enhances the reliability and validity of the research findings but also facilitates a holistic understanding of ecotourism dynamics in the BTT region.

Chapter 7. Field Study Results and Their Discussion

Based on the primary data collection process and the methods outlined in Chapter 6, Chapter 7 presents the findings from field research to analyze and discuss key factors related to ecotourism. The content of this chapter is organized into two main subchapters. The first subchapter focuses on the quantitative research results, where data collected from survey questionnaires are analyzed in detail. This includes identifying the demographic characteristics of survey participants, examining visitors' travel behaviors, analyzing their satisfaction levels using the PLS-SEM method, and evaluating the degree of local community involvement in ecotourism activities. This section aims to clarify the factors influencing the experiences and participation of both visitors and local communities in the context of ecotourism development.

The second subchapter highlights the qualitative research results, based on in-depth interviews with representatives of management and local communities. The information gathered reflects the potential for ecotourism development at various destinations, including systems for collecting visitor data, labor resources, as well as trends and future development plans. In addition, interviews with local communities shed light on the impacts of ecotourism on residents' lives, their level of participation in tourism activities, and the community's role in natural resource conservation.

7.1. Results of Quantitative Research

This subchapter presents the quantitative research results, analyzing key aspects of ecotourism in the Binh-Tri-Thien (BTT) region. First, the demographic characteristics of survey participants are described, providing foundational information on their age, gender, education, and occupation. Next, the features of their trips are discussed to clarify tourist behaviors, including the sources of information that tourists use to know about destinations, their travel motivations, and the types of ecotourism activities they prefer. Finally, the PLS-SEM model is applied to analyze factors influencing visitor satisfaction, offering a scientific basis for recommendations to promote sustainable ecotourism development.

7.1.1. The Demographic Background of Respondents

The Tourist Survey Sample

Socio-demographic information obtained from the tourist survey sample is presented in Table 7.1. Domestic tourists account for 63.7% of the total sample; foreign tourists account for 36.3%.

Table 7.1. Socio-demographic Characteristics of the Tourist Sample

Demographics	**Description**	**Quantity** (people)	**Percent**
Nationality	National	313	63.7
	Foreign	178	36.3
Gender	Male	234	47.7
	Female	257	52.3
Age (years)	18–28	202	41.1
	29–48	120	24.4
	49–65	159	32.4
	>65	10	2.0
Education level	Primary	6	1.2
	Secondary	135	27.5
	University	250	50.9
	Postgraduate/Master/Ph.D.	100	20.4
Professional activities	Student	157	32.0
	Researcher/scientist	18	3.7
	Businessman	75	15.3
	Private Employee	110	22.4
	Public Employee	75	15.3
	Unemployed	10	2.0
	Retired	8	1.6
	Other	38	7.7

According to the survey, domestic tourists primarily originate from major cities such as Hanoi, Da Nang, and Ho Chi Minh City. These individuals frequently organize ecotourism group tours. Additionally, independent travelers predominantly come from neighboring provinces like Nghe An, Ha Tinh, and Quang Nam province. Travel restrictions due to the COVID-19 pandemic have made it difficult for international tourists to access ecotourism destinations in the BTT region during the field research period. This is part of the reason why the number of foreign tourists is limited. In terms of origin, foreign tourists mainly come from South Korea, China, United Kingdom, Germany, Laos and the United States. In terms of age, the majority group is people aged 18–28 (41.1%), followed by those aged 49–65 (32.4%) (both domestic and foreign tourists). Regarding gender, 52.3% of tourist survey sample is female while the remaining 47.7% are male (both domestic and foreign tourists). Regarding educational level, the number of tourists with university and postgraduate education is high (more than 70%).

Local Communities Survey Sample

Socio-demographic information obtained from the local community survey sample is presented in Table 7.2. The largest proportion of sample (52.7%) is individuals not involved

in tourism. This suggests that the community respondents come from a diverse range of backgrounds and are not solely limited to those working in tourism. Apart from them, there is (in the sample) a significant representation from local (family and small) tourist businesses (31.3%) and a smaller portion (15.9%) from authorities. The age group with the highest representation is 29–48 years old (34.6%), followed by 49–65 years old (24.7%) and 18–28 years old (21.4%). Only a small percentage (19.2%) are above 65 years old. This indicates that the majority of respondents are middle-aged adults, with a good representation of young adults as well. A significant proportion of respondents (48.9%) have a university degree. Additionally, 39.6% have a secondary education level. A smaller percentage (6.6%) have a postgraduate degree and only a small number (4.9%) have a primary education level. This suggests that the community representatives (present in the sample) are generally well-educated.

Table 7.2. Socio-demographic Characteristics of the Local Community Sample

Demographics	**Description**	**Quantity** (people)	**Percent**
Occupation, representatives of	Authorities	29	15.9
	Local (family and small) tourist businesses	57	31.3
	Individuals (not involved in the tourism)	96	52.7
Gender	Male	98	53.8
	Female	84	46.2
Age (years)	18–28	39	21.4
	29–48	63	34.6
	49–65	45	24.7
	>65	35	19.2
Education level	Primary	9	4.9
	Secondary	72	39.6
	University	89	48.9
	Postgraduate/Master/Ph.D.	12	6.6

7.1.2. Characteristics of Visits

The survey sample shows that respondents visiting the Binh-Tri-Thien (BTT) region primarily arrive via organized tours (68.7%). The remaining portion travels independently (31.3%). Notably, a higher proportion of foreign tourists (73.5%) participate in tours compared to domestic tourists. Several factors can contribute to this disparity in tour participation between domestic and foreign visitors at the BTT ecotourism destinations. Firstly, language barriers probably hinder foreign tourists' ability to communicate effectively and integrate with the local culture. Tour participation can provide them with a guide who can facilitate communication, explain local customs and traditions, and ensure a sense of security

and comfort throughout their visit. Secondly, many foreign tourists can lack comprehensive information about ecotourism destinations within the BTT region. Joining a tour offers a pre-arranged itinerary, including transportation, accommodation, and other essential services, saving them time and effort in independent research. Thirdly, some international travelers might have security concerns when traveling solo in a foreign country. Participating in a tour provides them with a guide for accompaniment, ensuring their safety and assisting with any problems that may arise during the trip. Additionally, travel companies might provide professional and comprehensive services. By joining a tour, international guests can benefit from high-quality services, amenities, and unique experiences that would be difficult to arrange on their own.

The survey sample shows that a significant majority of tourists visiting ecotourism destinations within the BTT region are first-time visitors (55.5%). Furthermore, a substantial proportion of these visits are short-term stays, with a duration of no more than three days (71.5%). This pattern can be attributed to the inherent characteristics of ecotourism experiences. Ecotourism activities typically emphasize nature exploration, cultural immersion, and environmental education. These pursuits probably can not necessitate extended stays, as tourists can engage fully with the core offerings within two to three days. In addition, many tourists can choose ecotourism as a form of short-term rest, to escape the noise and bustle of city life. These visitors might have limited free time or prefer not to dedicate a significant amount of time to a single destination.

The survey sample shows that the primary mode of transportation for visitors to the BTT region ecotourism destinations is private vehicles, encompassing both motorbikes and cars (65.4%). This preference can be attributed to the frequent location of ecotourism sites in remote areas with underdeveloped transportation infrastructure. Utilizing motorbikes and cars can grant tourists greater flexibility and autonomy compared to relying on limited public transportation options. Additionally, the topography of the protected areas is often complex, characterized by frequent hills and uneven roads. Compared to other options like buses or large passenger cars, motorbikes and cars can be deemed more suitable for navigating this terrain. Furthermore, ecotourism experiences frequently involve exploration of multiple locations. By employing motorbikes or cars, tourists can maneuver between these sites with ease and adapt their itinerary based on their preferences. This flexibility probably allows for spontaneous stops to admire scenery, capture photographs, or partake in other activities that arise during the journey.

Information Sources about Ecotourism

Tourist information sources play a crucial role in raising awareness of diverse ecotourism destinations. Notably, domestic respondents in the BTT region primarily rely on 'friends and relatives' (32.5%) as their principal source of information. This preference can be attributed to the tendency of domestic tourists to place greater trust in the recommendations and experiences shared by their social circles, compared to alternative sources such as advertising, social media, or travel websites. Furthermore, domestic tourism is often characterized by group or family travel. Consequently, information and travel experience sharing among group members, friends, and relatives is a common and effective means of destination discovery.

For foreign respondents visiting the BTT region, the primary sources of information on ecotourism destinations are 'travel companies' (37.7%) and 'internet, social networks, and television' (32.3%). This preference can stem from several factors. Firstly, travel companies, travel websites, and social networks frequently offer information in English and other widely spoken languages, enhancing accessibility and comprehension for foreign tourists. Secondly, foreign tourists, particularly younger demographics, are probably more likely to utilize the internet, social networks, and television for travel research. Recognizing this trend, travel companies and social networks are increasingly developing online applications and services to cater to this demand. Furthermore, travel companies and tourism management agencies might engage in advertising and promotional campaigns disseminated through the internet, social networks, and television to attract international visitors to the BTT region (Table 7.3).

Table 7.3. Information Sources for Tourists to Learn about the Destinations

Sources	Domestic tourists		Foreign tourists	
	Quantity (people)	Percent	Quantity (people)	Percent
Tourist company	154	19.6	154	37.7
Internet, social networks, and television	178	22.6	132	32.3
Newspapers, magazines, and brochures	56	7.1	41	10.0
Friends and relatives	256	32.5	63	15.4
Visitor Center of the national park	45	5.7	12	2.9
Previous trip	98	12.5	7	1.7

Motivation of the Trip

Table 7.4 shows that the majority of respondents choose to visit ecotourism destinations because of three main factors: 1) the site's ecological value; 2) historical, cultural, and artistic elements of the local community; and 3) study and research. These findings demonstrate the multifaceted appeal of ecotourism destinations. They cater to tourists' desires for nature

immersion, exploration of flora and fauna, and knowledge acquisition regarding conservation practices. The convergence of ecological value, cultural elements, and learning opportunities can serve as the cornerstone for attracting tourists to these destinations.

Table 7.4. Tourist Motivations

Factors	Domestic tourists		Foreign tourists	
	Quantity (people)	Percent	Quantity (people)	Percent
The site's ecological value	313	22.9	178	20.5
A tour that offers informative details about the destination with a reasonable price	115	8.4	98	11.3
Great tour service	120	8.8	87	10.0
Cultural attractions	256	18.7	102	11.8
Opportunities for study and research	132	9.7	75	8.7
The opportunity to meet new people who share similar interests	98	7.2	64	7.4
The opportunity to experience tourism	73	5.3	62	7.2
To escape the hustle and bustle of the urban life	74	5.4	54	6.2
Engaging in physical activities	87	6.4	85	9.8
Visiting as part of a larger trip to other destinations	98	7.2	62	7.2

Both domestic and foreign tourists share similar motivations, focusing on the destination's ecological value and cultural attractions. These groups exhibit a relatively equal interest in opportunities to meet like-minded individuals and engage in physical activities. Domestic tourists, however, place a higher value on research and learning opportunities (9.7%) compared to foreign tourists (8.7%). Conversely, international tourists are more driven by the desire for novel travel experiences and escaping the urban lifestyle.

Type of Ecotourism

As depicted in Table 7.5, a variety of ecotourism activities are offered within the BTT region. Forest walking reigns supreme as the most popular pursuit, followed by wildlife observation and exploration of waterfalls or streams. These experiences exemplify core ecotourism activities, often characterized by their accessibility and minimal requirement for specialized skills or prior experience. For instance, forest walking grants tourists the opportunity to fully immerse themselves in the natural environment, breathe fresh air, and experience the tranquility of the forest. This activity is well-suited for a broad range of participants, encompassing all ages and fitness levels, from children to older adults. Wildlife observation activities play a crucial role in fostering awareness among tourists regarding the significance of nature conservation and biodiversity preservation. While not the primary focus of

ecotourism, cultural exploration remains a significant component of the tourist experience, particularly for international visitors. A higher proportion of foreign tourists choose to engage in cultural activities compared to domestic tourists. This aspect presents an opportunity for further development within ecotourism programs, aiming to enhance cultural experiences for both domestic and international travelers.

Table 7.5. Type of Ecotourism Activities

Factors	Domestic tourists		Foreign tourists	
	Quantity (people)	Percent	Quantity (people)	Percent
Walking in the forest	313	23.1	178	19.7
Experiencing waterfalls or streams	198	14.6	152	16.9
Camping	42	3.1	63	7.0
Observing forest vegetation	276	20.4	165	18.3
Adventure tour	165	12.2	123	13.6
Study and research	182	13.4	95	10.5
Discover local culture	178	13.1	126	14.0

Furthermore, there are differences in ecotourism preferences between domestic and international tourists. Domestic tourists tend to prefer activities such as forest trekking, vegetation observation, and educational studies, while international tourists are more inclined towards waterfall experiences, camping, adventure tours, and local cultural exploration. This highlights the distinct ecotourism preferences between the two groups, with domestic tourists leaning towards nature-based and academic experiences, and international tourists prioritizing adventurous and cultural activities.

7.1.3. Tourist Satisfaction Analysis

The study employs the PLS-SEM method to measure the impact of various factors on tourist satisfaction in the Binh-Tri-Thien (BTT) region (its four destinations). The PLS-SEM is appropriate due to its ability to handle complex models with multiple constructs, its suitability for small to medium sample sizes, and its flexibility with non-normally distributed data (as presented in Section 6.3.2).

To capture the multidimensional nature of tourist satisfaction, eight independent variables were selected based on relevant literature (An et al., 2024; Giao et al.; Toker and Emir, 2023) and the specific context of ecotourism in the BTT region. Eight independent variables are hypothesized to have a direct influence on the dependent variable – 'tourist satisfaction'. Each of the variables is measured through a specific set of observed variables. In particular, this study employs eight independent variables (34 observed variables) and a

dependent variable (3 observed variables), as shown in Table 7.6.

Evaluation of the Proposed the PLS-SEM Model

Evaluating the proposed PLS-SEM model is a critical step to ensure the quality, reliability, and validity of the measurement and structural components of the model (Hair Jr et al., 2014). Without proper assessment, the estimated relationships between constructs may lead to misleading conclusions, especially in complex models involving multiple variables and observed indicators (Kurtaliqi et al., 2024). The evaluation of the proposed the PLS-SEM model was based on the following reliability indicators:

Reliability Indicator

To assess the reliability of the measurement model, this study employs the use of outer loadings for each observed variable. Outer loadings represent the correlation between an observed variable and its corresponding latent construct, indicating how well the indicator reflects the underlying factor. Mathematically, outer loading is the standardized coefficient obtained from the PLS algorithm that links each observed variable (indicator) to its latent variable[5].

According to Sarstedt et al. (2022), an outer loading value of 0.708 or higher is considered acceptable, as it implies that the construct explains at least 50% of the variance in the indicator ($0.708^2 \approx 0.50$). Indicators with loadings below this threshold may be considered for removal unless they are deemed theoretically important or help preserve content validity. Thus, in this study, only observed variables with outer loadings above 0.708 were retained to ensure adequate indicator reliability for the PLS-SEM model.

The results showed that the outer loadings of variables were greater than 0.708. However, due to the outer loading of PS5 being 0.37, this observed variable was excluded from the model. The second round of testing indicated that all observed variables had values greater than 0.708 (Table 7.7). Therefore, it can be concluded that the data used is suitable for subsequent tests.

[5] Latent variables refer to abstract concepts that cannot be measured directly but are inferred through a set of related observed variables

Table 7.6. Variables of the Proposal Model

Variables		Encryption	Observed variables	Encryption	Sources
Independent Variables	Sightseeing	SS	Natural and cultural attractions	SS1	Tarlow, 2014; Toker and Emir, 2023; Mbira, 2024; Phung et al., 2024
			Convenience on travelling to locations	SS2	
			Safety at attractions	SS3	
	Eco-tour Guide	EG	Language proficiency	EG1	Geva and Goldman, 1991; Ap and Wong, 2001; Van Huynh et al., 2024; Zhang and Fukami, 2024
			Friendliness, professionalism and enthusiasm	EG2	
			Presentation skills	EG3	
			Information and educational content provided	EG4	
	Transportation	TS	Easy of access to transport	TS1	Iniesta-Bonillo et al., 2016; Simarmata et al., 2017; Rohini, 2024
			Available means of transport	TS2	
			Transport safety	TS3	
	Food and Beverage	FB	Food and beverage services availability	FB1	Björk and Kauppinen-Räisänen, 2016; Stone et al., 2018; Peng and Jiang, 2022
			Standards of hygiene and quality of food services	FB2	
			Variety of cuisine options	FB3	
			Staff professionalism and service quality	FB4	
	Accommodation	AS	Accommodation availability	AS1	Oliver, 2014; Pérez-Orozco, et al., 2022; Sugiama et al., 2022
			Accommodation quality	AS2	
			Staff professionalism and service quality	AS3	
	Entertainment and Shopping	ES	Various recreational activities	ES1	Hong and Saizen, 2019; Cheraghzadeh et al., 2023; Shang et al., 2023
			Various souvenirs	ES2	
			Staff professionalism and service quality	ES3	
	Price	PS	Entrance tickets	PS1	Rivera and Croes, 2010; Hau, 2014; Chua et al., 2015; Giao et al., 2021
			Transport	PS2	
			Food and beverage	PS3	
			Accommodation	PS4	
			Entertainment and shopping	PS5	

	Public Facilities	PF	Clean water availability	PF1	Mandić et al., 2018; Giao et al., 2021; Luo et al., 2022; Baloch et al., 2023; An et al., 2024
			Communication systems	PF2	
			Garbage dumps	PF3	
			Parking areas	PF4	
			Public signs	PF5	
			Security facilities	PF6	
			Health facilities	PF7	
			Rest areas	PF8	
			Interpretative facilities	PF9	
Dependent Variable	Tourist Satisfaction	ST	Overall, I am satisfied with the ecotourism services	ST1	Giao et al., 2021; Toker and Emir, 2023; An et al., 2024
			I will recommend this destination to others	ST2	
			I want to return to this destination	ST3	

Table 7.7. Factor Loading of the Model

Variables	Observed variables	Factor loading	Variables	Observed variables	Factor loading
Sightseeing (SS)	SS1	0.93	Entertainment and Shopping (ES)	ES1	0.87
	SS2	0.95		ES2	0.96
	SS3	0.90		ES3	0.95
Eco-tour Guide (EG)	EG1	0.86	Price (PS)	PS1	0.90
	EG2	0.91		PS2	0.88
	EG3	0.89		PS3	0.92
	EG4	0.88		PS4	0.80
Transportation (TS)	TS1	0.90	Public Facilities (PF)	PF1	0.74
	TS2	0.90		PF2	0.75
	TS3	0.83		PF3	0.86
Food and Beverage (FB)	FB1	0.91		PF4	0.88
	FB2	0.94		PF5	0.90
	FB3	0.94		PF6	0.90
Accommodation (AS)	AS1	0.91		PF7	0.86
	AS2	0.92		PF8	0.88
	AS3	0.89		PF9	0.86
Tourist Satisfaction (ST)	ST1	0.72			
	ST2	0.74			
	ST3	0.76			

Source: author's work based on Smart PLS 3.0

Internal Consistency Reliability

Internal Consistency Reliability refers to the degree to which the observed variables (indicators) within a construct consistently measure the same underlying concept. In this study, internal consistency was assessed using Cronbach's alpha and Composite Reliability. Both metrics evaluate how closely related a set of items are as a group.

Cronbach's alpha evaluates the internal consistency by measuring the average correlation among observed variables within a latent construct (Tavakol and Dennick, 2011). It assumes that all indicators contribute equally to the construct, as shown in Eq 7. A value of 0.70 or higher is considered acceptable, indicating that the observed variables are sufficiently correlated.

$$\alpha = \frac{K}{K-1}\left(1 - \frac{\sum_{i=1}^{K}\sigma_{Y_i}^2}{\sigma_X^2}\right) \quad (7)$$

(7) where:

α is the Cronbach's Alpha;

K is number of observed variables;

$\sigma_{Y_i}^2$ is variance of each observed variable;

σ_X^2 is variance of the sum of all observed variables.

Composite Reliability provides a more accurate estimate of internal consistency than Cronbach's Alpha, as it accounts for the differing outer loadings of indicators (Sarstedt et al., 2022), as presented in Eq 8. The Composite Reliability should fall within the range of 0.70 to 0.95, suggesting that the construct demonstrates adequate internal consistency without redundancy among indicators..

$$\rho_c = \frac{(\sum_{i=1}^{K} \lambda_i)^2}{(\sum_{i=1}^{K} \lambda_i)^2 + \sum_{i=1}^{K} \theta_i} \qquad (8)$$

(8) where:

ρ_c is Composite Reliability (CR);

K is number of observed variables;

λ_i is outer loading of the i-th observed variable (indicator);

θ_i is error variance.

The results showed that the Cronbach's alpha and the Composite Reliability of the all variables were all greater than 0.7 (Table 7.8) (Sarstedt et al., 2022). This implies that the observed variables within each construct are highly correlated, thereby providing good reliability for the model.

Average Variance Extracted Indicator

The Average Variance Extracted (AVE) is a key indicator used to assess convergent validity in PLS-SEM models. According to Hair et al. (2014), a measure achieves convergent validity if the Average Variance Extracted is 0.5 or higher. This 0.5 (50%) threshold signifies that the latent construct, on average, explains at least 50% of the variance in its constituent items (Hock et al., 2010). The formula for Average Variance Extracted (AVE) is presented in Eq 9.

$$AVE = \frac{\sum_{i=1}^{K} \lambda_i^2}{K} \qquad (9)$$

(9) where:

AVE is the Average Variance Extracted;

K is number of observed variables;

λ_i is outer loading of the i-th observed variable (indicator).

The results showed that the Average Variance Extracted values for all variables exceeded 0.5, indicating that each construct explained more than 50% of the variance in its corresponding observed variables (Table 7.8).

Table 7.8. Construct Reliability and Validity of the Model

Variables	Cronbach's alpha	Composite reliability	AVE
Sightseeing (SS)	0.92	0.95	0.87
Eco-tour Guide (EG)	0.91	0.93	0.79
Transportation (TS)	0.85	0.91	0.77
Food and Beverage (FB)	0.92	0.95	0.87
Accommodation (AS)	0.90	0.93	0.83
Entertainment and Shopping (ES)	0.92	0.95	0.86
Price (PS)	0.90	0.93	0.77
Public Facilities (PF)	0.95	0.96	0.73
Tourist Satisfaction (ST)	0.74	0.82	0.71

Source: author's work based on Smart PLS 3.0

Discriminant Validity

This indicator assesses whether a construct is truly distinct from other constructs in a model. One of the most widely recommended methods for evaluating discriminant validity in PLS-SEM is the Heterotrait-Monotrait Ratio of Correlations (HTMT), proposed by Henseler and Fassott (2010). For intance, the HTMT between construct A and construct B is calculated based on Eq 10.

$$HTMT_{A,B} = \frac{mean\ (|corr\ (x_i,y_i|)}{\sqrt{mean\ (|corr\ (x_i,x_k)|)\ .\ mean\ (|corr\ (y_i,y_k|)}} \qquad (10)$$

(10) where:

x_i and x_k are indicators of construct A;

y_i and y_k are indicators of construct B;

corr (x_i,y_i) is the correlation between an indicator from A and one from B (heterotrait-heteromethod);

corr (x_i,x_k) and (y_i,y_k) are correlations between indicators within the same construct (monotrait-heteromethod). All correlations are taken in absolute value $|\cdot|$.

The HTMT values below 0.85 indicate strong evidence of discriminant validity. Values between 0.85 and 0.90 are generally acceptable. Values above 0.90 suggest a lack of discriminant validity, meaning the constructs may be measuring the same concept (Henseler and Fassott, 2010). In this study, all HTMT values between constructs were found to be below 0.85, which confirms that the latent constructs are sufficiently distinct from one another. This satisfies the condition for discriminant validity (Table 7.9).

Table 7.9. Heterotrait-Monotrait Ratio Criterion

	Variables								
	SS	EG	TS	FB	AS	ES	PS	PF	ST
SS	0.85								
EG	0.74	0.81							
TS	0.64	0.79	0.86						
FB	0.83	0.81	0.80	0.82					
AS	0.79	0.72	0.76	0.80	0.82				
ES	0.79	0.72	0.73	0.79	0.82	0.84			
PS	0.73	0.68	0.86	0.82	0.77	0.82	0.96		
PF	0.81	0.77	0.82	0.73	0.79	0.76	0.86	0.83	
ST	0.77	0.78	0.71	0.75	0.80	0.74	0.81	0.79	0.78

Source: author's work based on Smart PLS 3.0

Therefore, the results of the assessment indicate that the proposed research model exhibits satisfactory scale reliability, as well as the quality of both latent and observed variables, providing a solid foundation for subsequent analyses.

Assessment of the Model Fit

Evaluating the model fit in Partial Least Squares Structural Equation Modeling (PLS-SEM) is essential for determining how well the proposed model corresponds to the observed data (Hair et al., 2019). Although PLS-SEM is primarily used for prediction-oriented analysis rather than model fit evaluation, several indices have been introduced to provide insights into how adequately the model captures the data structure (Dash and Paul, 2021).

Standardized Root Mean Square Residual

The value is one of the most widely used indicators for assessing model fit in PLS-SEM. It reflects the average discrepancy between the observed and predicted correlations. According to Henseler and Fassott (2010), an SRMR value below 0.08 suggests a good model fit. This indicator is calculated using Eq 11.

$$SRMR = \sqrt{\frac{2}{p\,(p+1)}} \sum_{i=1}^{p} \sum_{j=1}^{p} (p_{ij} - \hat{p}_{ij})^2 \qquad (11)$$

(11) where:

p_{ij} is the observed correlation;

$\hat{p}_{ij}$ is the predicted correlation between variables i and j.

In this study, the SRMR for the estimated model was 0.07, which falls within the acceptable threshold, indicating that the model sufficiently reproduces the empirical correlation matrix.

Table 7.10. Model Fit Assessment

Indicators	Saturated model
Standardized Root Mean Square Residual (SRMR)	0.07
Unweighted Least Squares discrepancy (d_ULS)	3.34
Geodesic Discrepancy (d_G)	5.65
Normed Fit Index (NFI)	0.68

Source: author's work based on Smart PLS 3.0

Unweighted Least Squares and Geodesic Discrepancy

Two additional fit indicators – Unweighted Least Squares discrepancy (d_ULS) and Geodesic discrepancy (d_G) – were also calculated. These metrics quantify the difference between the empirical and model-implied correlation matrices using different distance measures. Lower values for both d_ULS and d_G suggest better fit. In this model, the values for d_ULS and d_G were 3.34 and 5.65, respectively, indicating an acceptable level of discrepancy between the predicted and actual data.

Normed Fit Index

This indicator assesses the proportionate improvement in fit of the proposed model compared to the null model. Its values range between 0 and 1, where values closer to 1 indicate a better model fit. The formula for NFI is presented in Eq 12.

$$NFI = 1 - \frac{\chi^2_{model}}{\chi^2_{null}} \qquad (12)$$

(12) where:

χ^2_{model} represents the chi-square value of the proposed model;

χ^2_{null} represents the chi-square value of the null (independence) model.

According to Bentler and Bonett (1980), an Normed Fit Index (NFI) value of 0.90 or higher suggests a good model fit. However, in exploratory research or PLS-SEM applications, values between 0.60 and 0.90 may still be considered acceptable, depending on the study context (Hair et al., 2014). The NFI value for this model was 0.68, suggesting a moderate but acceptable fit.

In conclusion, the fit indices – SRMR, d_ULS, d_G, and NFI – collectively demonstrate that the proposed PLS-SEM model provides an acceptable to good fit with the observed data.

This confirms that the model is capable of capturing the primary structural relationships among the variables and serves as a valid framework for subsequent analysis.

Path Coefficient Results

Path Coefficients refer to the numerical values that represent the strength and direction of relationships between variables in a structural equation model (Hair Jr et al., 2014; Dash and Paul, 2021). These coefficients indicate how much one variable (independent variable) influences another variable (dependent variable) within the model. In the context of PLS-SEM, the 'path' represents the hypothesized relationship between two variables, and the coefficient (often denoted as β) quantifies the degree of this influence. In general, the Path Coefficient (β) is calculated as follows (Eq 13):

$$\beta = \frac{Covariance\ between\ X\ and\ Y}{Variance\ of\ X} \qquad (13)$$

(13) where:

X is the independent variable.

Y is the dependent variable.

Covariance between X and Y indicates the degree to which X and Y vary together.

Variance of X represents the variability of the independent variable X.

Based on the assessment of the proposed research model, the latent and observed variables met the criteria for further structural equation modeling using non-parametric bootstrapping. This technique involves repeated sampling with replacement and is employed in the PLS-SEM to compute confidence intervals for all parameter estimates, facilitating statistical inference. Furthermore, bootstrapping allows treating the observed sample as if it represents the entire population, and the partial least squares results from all bootstrap samples provide mean values and standard errors for each estimated coefficient. In this study (with a sample size of 491), the authors conducted 1,000 bootstrap iterations as recommended by Hair et al. (2014).

The analysis results show that 'sightseeing' has the strongest impact on tourist satisfaction, as it has the highest β coefficient (β = 0.44). The β coefficient show that for every unit increase in sightseeing service, tourist satisfaction is expected to increase by 0.44 units. This also means that, among all the factors considered, sightseeing is the most significant contributor to how satisfied tourists feel during their trip. This underscores that natural landscapes and attractions in the region are the central elements contributing significantly to attracting tourists and enhancing their ecotourism experiences. 'Price' (β = 0.14) ranks

second, reflecting the importance of maintaining reasonable costs. Competitive pricing, particularly in the context of ecotourism, significantly contributes to overall tourist satisfaction.

Other factors, such as 'ecotour guide and interpreter' (β = 0.13), accommodation (β = 0.11), and 'food and beverage' (β = 0.10), also have notable impacts. Ecotour guides and interpreters play a crucial role in providing information and raising tourists' awareness about nature and local culture. Moreover, quality accommodations and the variety and appeal of culinary services are indispensable elements in enhancing the overall tourist experience.

Factors such as 'transportation' (β = 0.05), 'entertainment and shopping' (β = 0.02), and 'public facility' (β = 0.01) have lower impacts on tourist satisfaction. While transportation is not a primary factor, it plays a supportive role in ensuring convenience. Entertainment and shopping activities receive less emphasis, which aligns with the characteristics of ecotourism, where visitors typically seek natural and cultural experiences rather than commercial activities. Public facilities have the least impact, possibly due to tourists' lower expectations regarding infrastructure in this type of tourism (Table 7.11).

Table 7.11. Path Coefficients in Model Fit

Path coefficients	**Values** (β)
Sightseeing -> Tourist satisfaction	0.44
Price -> Tourist satisfaction	0.14
Eco-tour Guide -> Tourist satisfaction	0.13
Accommodation -> Tourist satisfaction	0.11
Food and Beverage -> Tourist satisfaction	0.10
Transportation -> Tourist satisfaction	0.05
Entertainment and Shopping-> Tourist satisfaction	0.02
Public Facilities -> Tourist satisfaction	0.01

Source: author's work based on Smart PLS 3.0

The findings suggest that priority should be given to developing high-impact factors, particularly natural landscapes, pricing, and the quality of ecotour guides in the BTT region. Investments in landscape conservation, capacity building for tour guides, and maintaining competitive pricing should be top priorities. Simultaneously, improving supporting elements such as entertainment, shopping, and public infrastructure is necessary to create a more comprehensive experience for tourists.

Hypothesis Testing Results

While path coefficients indicate the strength and direction of the relationship between various factors (e.g., sightseeing, accommodation) and tourist satisfaction in the Binh-Tri-Thien region, hypothesis testing helps determine whether these relationships are statistically significant – meaning whether the observed effects are likely to reflect real patterns in the broader tourist population or if they may have occurred by chance (Hair et al., 2019; Dash and Paul, 2021; Kurtaliqi et al., 2024).

In structural equation modeling, T-statistics and P-values are critical metrics used to assess whether the relationship between an independent variable and a dependent variable is statistically significant. The T-statistic evaluates the strength of this relationship by dividing the estimated path coefficient by its standard error, thereby indicating how many standard deviations the coefficient is from zero. A T-value greater than 1.96 (at a 95% confidence level) implies that the effect is statistically significant, whereas a T-value less than or equal to 1.96 suggests that the effect may not be strong enough to be reliably distinguished from zero (Hair et al., 2019). Complementing to T-statistic, the P-value represents the probability that the observed effect could have occurred by random chance, assuming no actual relationship exists in the population. A P-value less than 0.05 provides strong evidence in favor of the hypothesis, indicating a statistically significant relationship. Conversely, a P-value greater than 0.05 implies that the observed relationship is not statistically significant, and thus, we cannot confidently assert that the variable has a meaningful impact on the dependent variable, such as tourist satisfaction in this study (Hair et al., 2019; Kurtaliqi et al., 2024).

In this study, although all eight explanatory variables exhibited positive path coefficients, only six of them demonstrated statistically significant effects on tourist satisfaction based on the results of the bootstrap estimation. Specifically, ‘transportation’ and ‘entertainment and shopping’ were excluded from the final model because their P-values (0.08 and 0.72, respectively) exceeded the 0.05 threshold (Table 7.12). This implies that, although these variables showed a positive influence on tourist satisfaction, the effects were not statistically significant. Excluding these two variables enhances the reliability and parsimony of the model by retaining only those factors whose influence on tourist satisfaction can be confidently supported by statistical evidence.

Table 7.12. Hypothesis Testing Results

Path coefficients	Hypotheses	T-Statistics	P-values	Decicion
Sightseeing -> Tourist satisfaction	H1	9.33	0.00	accepted
Price -> Tourist satisfaction	H7	3.60	0.00	accepted
Eco-tour Guide -> Tourist satisfaction	H2	3.34	0.01	accepted
Accommodation -> Tourist satisfaction	H5	3.08	0.00	accepted
Food and Beverage -> Tourist satisfaction	H4	2.12	0.03	accepted
Transportation -> Tourist satisfaction	H3	1.74	0.08	rejected
Entertainment and Shopping-> Tourist satisfaction	H6	0.35	0.72	rejected
Public Facilities -> Tourist satisfaction	H8	2.55	0.03	accepted
Model explanation level (Adjusted R^2) = 0.79				

Source: author's work based on Smart PLS 3.0

Moreover, the model's explanatory power, as indicated by the adjusted R^2 value of 0.79, suggests that 79% of the variation in tourist satisfaction is explained by these six variables, confirming the robustness of the model.

Therefore, the bootstrap estimation results yielded a PLS-SEM structural model comprising six factors: 1) sightseeing; 2) eco-tour guide, 3) food and beverage; 4) accommodation, 5) price, and 6) public facilities. These factors positively affect tourist satisfaction in the BTT region (Figure 7.1).

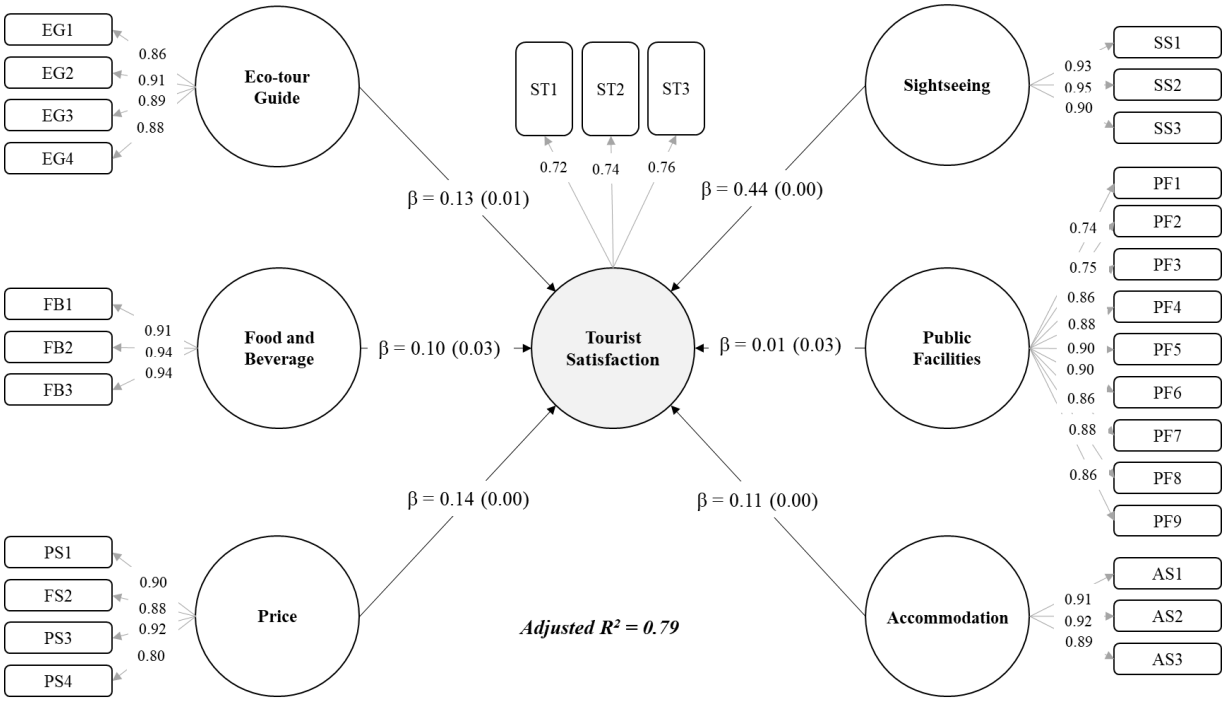

Figure 7.1. The Final Model Using Bootstrapping

Source: author's work based on Smart PLS 3.0

Based on the results of hypothesis testing, only factors with statistically significant relationships to tourist satisfaction were retained for further analysis and discussion. The subsequent discussions for each retained factor are supported not only by the statistical significance of the model but also by the mean scores of individual measurement items. These mean values (M) provide additional insight into how tourists perceived specific aspects of each factor, thereby enriching the interpretation of their influence on overall satisfaction.

Sightseeing services positively affect tourist satisfaction in the BTT region

Tourists reported relatively high satisfaction with the elements of sightseeing services, with foreign tourists expressing greater satisfaction than domestic tourists. Notably, 'Many beautiful and unique attractions' (M = 4.22) emerged as the factor with the highest satisfaction rating. This aligns with the inherent strength of ecotourism destinations, especially national parks, which boast wild and majestic natural landscapes encompassing waterfalls, caves, high mountains, and lakes. Among the variables, convenience of travel to the destination emerged as the lowest-rated element (M = 3.54). This finding can be attributed to the typical location of ecotourism destinations. Ecotourism destinations are frequently situated in remote areas, such as mountainous regions or along lagoons, where transportation infrastructure is less developed. This results in narrow, rough roads that can be challenging to navigate, and a lack of public transportation systems like buses and trains, ultimately hindering tourist convenience. The high level of satisfaction of tourists with the factor – 'Safety level' (M = 3.94) at tourist destinations is the result of many factors; In particular, ecotourism destinations often have pristine natural environments that are safe for tourists. Ecotourism areas are often protected by security personnel, with a system of warning signs about dangerous areas.

Based on the radar chart, it is evident that both domestic and international tourists highly value the quality of tour services at the surveyed site. Natural tourist attractions are the most satisfying factor for both groups, indicating the significant potential of the region for ecotourism development. Safety is also highly rated, reflecting the efforts of local authorities in ensuring security and order for tourists. However, the convenience of transportation to tourist sites remains a limitation, particularly for international tourists. This suggests that further investment in transportation infrastructure is needed to meet the growing demand from visitors (Figure 7.2).

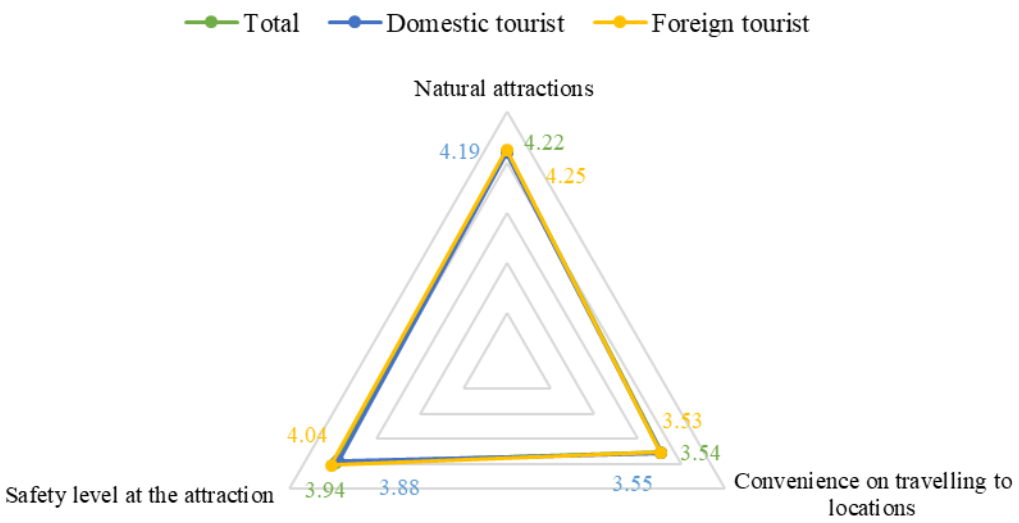

Figure 7.2. Level of Satisfaction with Sightseeing Services

The price of services positively affects tourist satisfaction in the BTT region

At certain ecotourism destinations, such as Bach Ma National Park and Phong Nha-Ke Bang National Park, tourists must purchase tickets for entry. Tourists also reported high satisfaction with the affordability of entrance fees, with adult tickets priced at a modest $2.36 per person, student tickets at $0.79, and children's tickets at $0.39. The accommodation system of tourist destinations has met the quantity with prices ranging from 11.78–41.24 USD/room/night. The price list for renting means of transportation is quite cheap: electric cars range from 7.86–11.79 USD/person/turn; motorbikes range from 3.93–7.86 USD/person/turn; boats range from 15.72–21.62 USD/boat/trip; bicycles range from 1.18–1.97 USD/person/turn.

The level of satisfaction with service prices between domestic and foreign tourists in the BTT region shows a marked difference (Figure 7.3). Foreign tourists are more satisfied with the prices of entrance fees (M = 4.12), transportation (M=3.99), and food services (4.18), primarily because they compare these prices with those in their home countries and find them reasonable or cheaper. In contrast, domestic tourists tend to be more satisfied with accommodation prices (M = 4.01) but feel that the prices for shopping and entertainment (M = 3.53) are not reasonable compared to the quality of the services. This disparity reflects the differing expectations and spending standards between the two tourist groups, necessitating adjustments by service providers to better meet the needs of both groups.

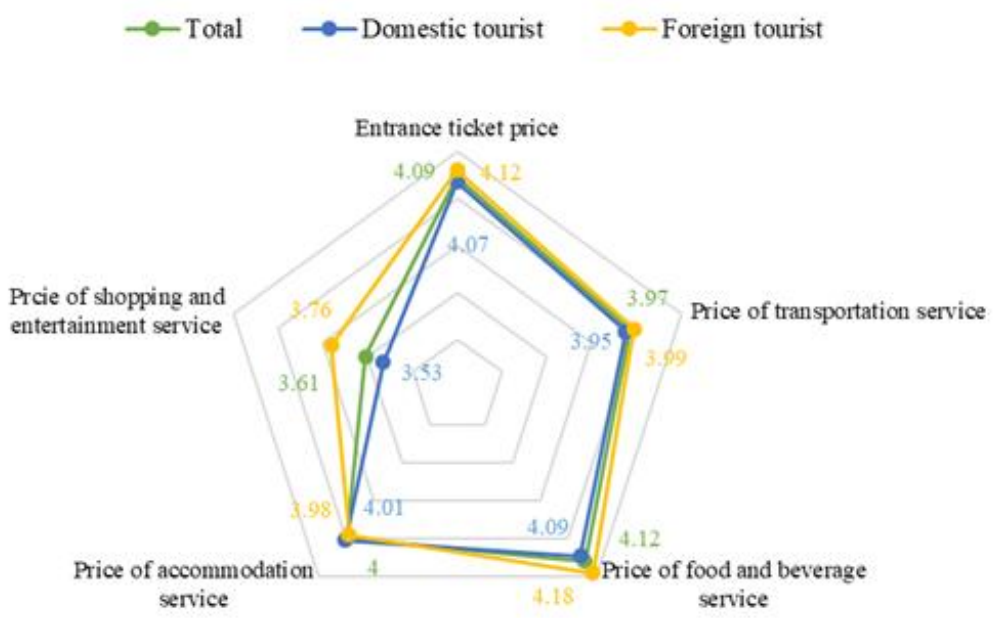

Figure 7.3. Level of Satisfaction with the Price Of Services

Eco-tour guide services positively affect tourist satisfaction in the BTT region

Prior to commencing the tour, tourists receive an overview of the tour map and are informed of relevant regulations. These regulations are also printed on tickets and displayed on signage and diagrams within the reception area. Tourists generally reported satisfaction with tour guide services, particularly regarding factors like language ability (M = 3.99), friendliness and enthusiasm (M = 4.11), presentation skills (M = 4.08), and the quality of educational content delivered (M = 4.09). Notably, many tour guides at ecotourism destinations possess professional knowledge in ecotourism principles. They are knowledgeable about local culture and natural ecosystems, enabling them to provide tourists with valuable and interesting information about the destination. This, in turn, fosters a deeper understanding of the area's beauty and ecological significance. Furthermore, the tour guides demonstrate attentiveness and a willingness to address tourist inquiries. They prioritize tourist needs and strive to deliver exceptional experiences.

Based on the radar chart, both domestic and international tourists rate the quality of tour guide services fairly highly (Figure 7.4). Language proficiency and presentation skills are two factors that international tourists particularly emphasize and rate more highly than domestic tourists. This indicates that the tour guides have been well-prepared to serve international visitors. Additionally, both groups express satisfaction with the content provided, suggesting that the information delivered is engaging and useful. However, to further enhance service quality, continued investment in the training and development of tour guides is necessary,

especially in language skills and communication.

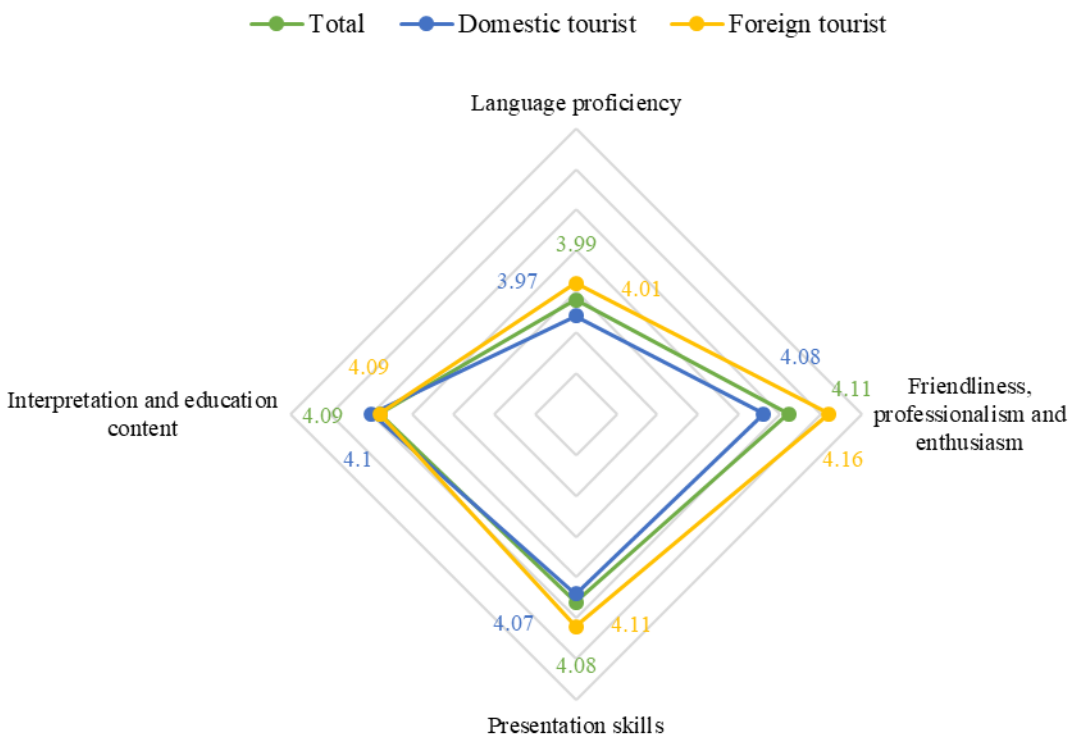

Figure 7.4. Level of Satisfaction with the Eco-Tour Guide

Accommodation services positively affect tourist satisfaction in the BTT region

Tourists are satisfied with accommodation services at ecotourism destinations (M value from 3.92 to 4.03). Tourists can choose from many different types of accommodation at ecotourism destinations such as hotels, ancient villas, homestays, stilt houses, camping. However, the quality of accommodation facilities is still low; mainly villas in the Bach Ma National Park because most of them were built a long time ago and are deteriorating.

Based on the radar chart, it is evident that both domestic and international tourists highly appreciate the quality of accommodation services at the surveyed site (Figure 7.5). All three factors received relatively high scores, indicating that ecotourism activities at this location have achieved certain success in meeting customers' accommodation needs. However, there are still areas for improvement to further enhance service quality. International tourists tend to rate the professionalism and service quality of staff more highly, suggesting a need to focus on training and improving staff capabilities, particularly in foreign language communication skills. Additionally, maintaining and enhancing room quality is crucial for retaining customers.

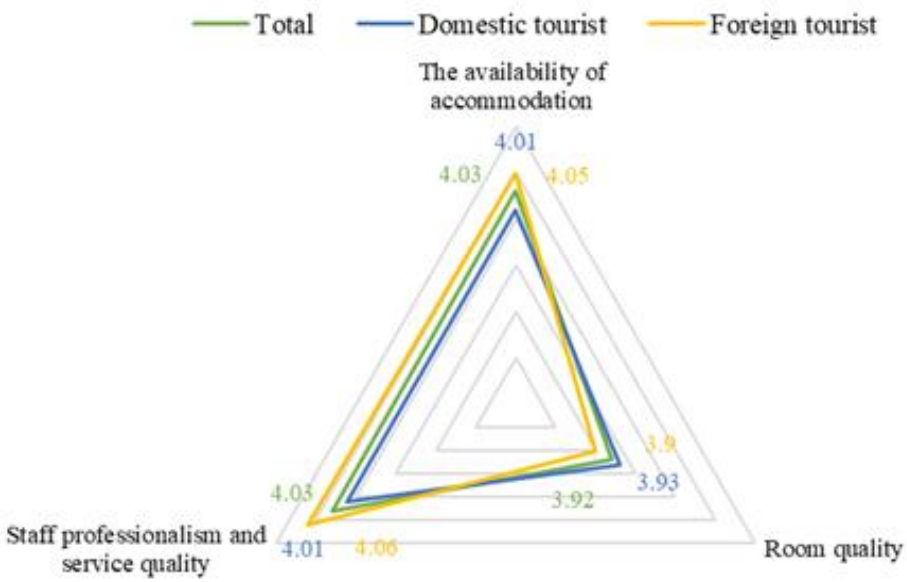

Figure 7.5. Level of Satisfaction with Accommodation Services

Food and beverage services positively affect tourist satisfaction in the BTT region

Tourists can enjoy a variety of dishes rich in typical local flavors; especially the dishes of the Pa Co ethnic minority people. In particular, in the Phong Nha-Ke Bang National Park, tourists can experience dining services right in the middle of the forest. Dishes are made from fresh local ingredients, ensuring food hygiene and safety. For the Ngu My Thanh community ecotourism site, tourists will enjoy the unique foods of the Tam Giang-Cau Hai lagoon on the huts. This is an interesting and profound experience that attracts tourists to experience. However, in-depth surveys and on-site observations revealed that vegetarian tourists, particularly those from abroad, often encountered challenges in finding suitable food options at ecotourism destinations. Additionally, some restaurants and eateries may not consistently meet hygiene and safety standards, potentially increasing the risk of foodborne illnesses for tourists.

Based on the radar chart, it is evident that both domestic and international tourists rated the quality of food and beverage services at the surveyed location quite highly (Figure 7.6). All four factors received relatively high scores. However, there are still areas that require attention to further enhance service quality. International tourists tend to rate the professionalism and service quality of staff higher (M = 4.12), indicating a need to focus on training and improving staff capabilities. This is because international tourists have higher service quality standards compared to domestic tourists. Furthermore, maintaining and improving the quality of dishes, along with ensuring food safety and hygiene, are crucial factors for retaining customers.

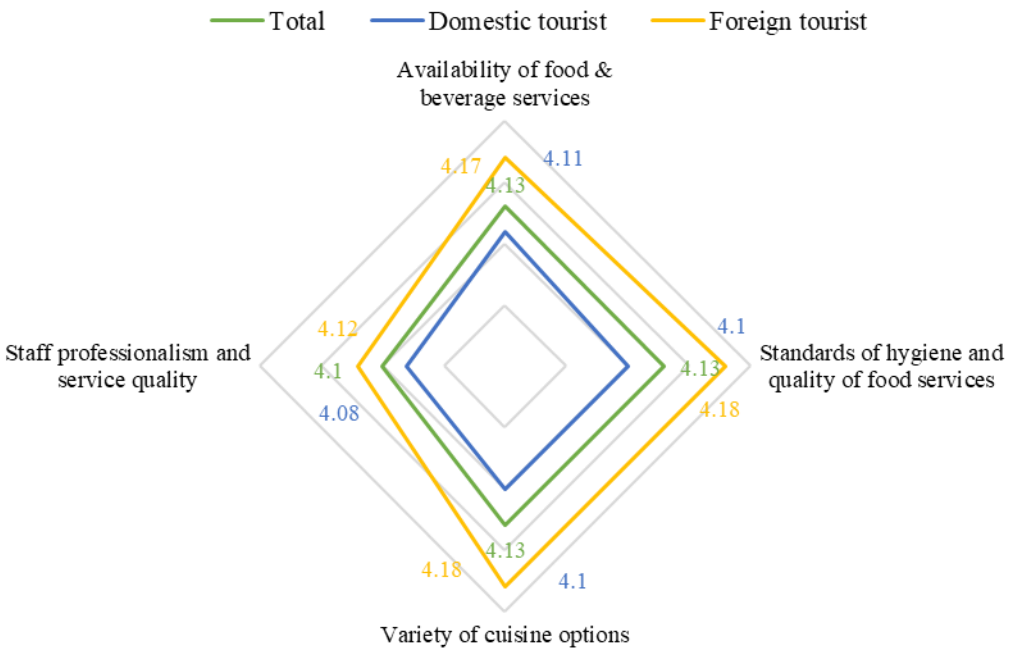

Figure 7.6. Level of Satisfaction with Food Services

Public facilities positively affect tourist satisfaction in the BTT region

The infrastructure at ecotourism destinations in the BTT region encompasses various facilities, including accommodations, dining establishments, transportation for visitors, souvenir shops, environmental interpretation centers, interpretive trails, parking areas, piers, boats, public restrooms, rest stops, a network of public waste bins, interpretive signage, and wildlife observation points. Surveys indicate that the national parks (Phong Nha-Ke Bang and Bach Ma National Parks) with well-developed ecotourism activities have invested in building and maintaining infrastructure to support tourism. However, at other tourist destinations, such infrastructure remains inadequate, substandard, and unable to meet the needs of visitors. The table 7.13 show that a general sense of moderate satisfaction with the infrastructure in the BTT region. The reason is that most ecotourism destinations are located far from city centers, leading to limited and uncoordinated infrastructure systems. Visitors seem particularly satisfied with parking areas (M = 3.82), while health facilities are seen as the weakest aspect (M = 3.53). Enhancements in health facilities, security, and other moderately rated aspects could significantly improve the overall visitor experience.

Table 7.13. Visitor's Opinions about the Infrastructure

Factors	General	Phong Nha-Ke Bang	Bach Ma	A Nor	Ngu My Thanh
Public lavatory	3.60	3.76	3.64	3.32	3.39
Communication systems	3.67	3.93	3.70	3.28	3.34
Garbage dump	3.62	3.90	3.66	3.18	3.26
Parking areas	3.82	4.11	3.97	3.26	3.32
Public signs	3.62	3.90	3.62	3.25	3.29
Security facilities	3.57	3.81	3.56	3.26	3.30
Health facilities	3.53	3.81	3.49	3.17	3.23
Rest area	3.63	3.83	3.81	3.14	3.20
Interpretative facilities	3.62	3.84	3.88	3.05	3.09

The level of tourist satisfaction with public facilities varies among tourist destinations in the BTT region. The Phong Nha-Ke Bang National Park has the highest ratings across almost all factors. Visitors are particularly satisfied with parking areas (M = 4.11), communication systems (M = 3.93), and garbage disposal (M = 3.90). This suggests that the park has well-developed infrastructure, providing a positive visitor experience. The Bach Ma National Park also receives relatively high ratings, with the highest score for rest areas (M = 3.81) and interpretative facilities (M = 3.88). This indicates that the park offers good resting spots and informative resources for visitors. The Ngu My Thanh village has slightly better ratings than the A Nor waterfall but still needs improvements. The lowest scores are in interpretative facilities (M = 3.09) and health facilities (M = 3.23). The A Nor has the lowest ratings across all factors compared to other destinations. The lowest scores are in interpretative facilities (M = 3.05), health facilities (M = 3.17), and garbage dump (M = 3.18). This suggests that the A Nor's infrastructure needs significant improvements to enhance visitor satisfaction. Tourist satisfaction with public infrastructure exhibits variations across destinations owing to a confluence of factors. Firstly, national parks characterized by substantial investments and large scales, benefit from ample funding. Consequently, these parks prioritize infrastructure development, constructing modern facilities that effectively cater to tourist needs. In contrast, emerging destinations like the Ngu My Thanh village and the A Nor waterfall operate on a smaller scale with limited investment resources. The disparity translates into infrastructural shortcomings that fail to fully meet tourist expectations. Secondly, national parks attract a sizable and consistent influx of tourists, generating a steady stream of revenue for the destination. This financial stability empowers park management to allocate resources towards infrastructure upgrades and service quality enhancements. In addiion, national parks captivate visitors with their awe-inspiring landscapes and rich biodiversity, attracting tourists with

higher spending propensities. This elevated demand translates into heightened expectations for service quality and infrastructural provisions.

7.1.4. Local People's Involvement in Ecotourism Activities

Ecotourism emphasizes active participation of local communities (Fennell, 2020a). This participation encompasses various aspects, including involvement in management and supervision, provision of tourism services, environmental and cultural protection, training and capacity building initiatives, tourism promotion activities, and the cultivation of a welcoming local tourism image. However, survey results from the Binh-Tri-Thien (BTT) region indicate that the level of local community engagement in ecotourism activities remains low.

In order to survey the level of local community participation in ecotourism activities, a questionnaire form was designed to survey three main groups of respondents (authorities, local businesses and households). The survey results revealed a relatively low level of participation by local communities in management and monitoring activities (M = 3.25) as shown in Figure 7.7.

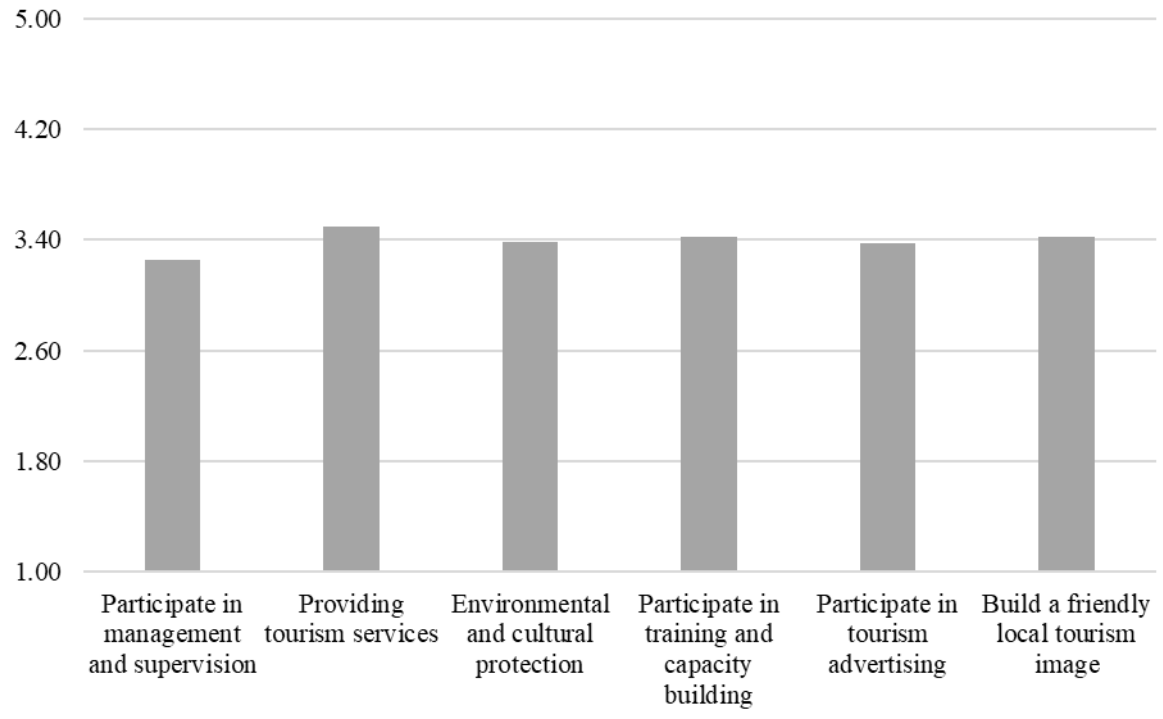

Figure 7.7. Local Community Involvement in Ecotourism Activities

Although people can contribute ideas to tourism development, decision-making power still resides with the National Park Management Board or Cooperatives. Additionally, local communities receive information about tourism activities but have limited influence on

decision-making processes and profit distribution. Therefore, the goal of empowering the community to manage tourism activities has not yet been fully achieved. This lack of voice in management and decision-making limits people's ability to benefit from tourism and ensure sustainable tourism development. Similarly, participation in training and capacity building programs, tourism promotion activities, and the development of a welcoming local tourism image also remained modest (Figure 7.8). This limited engagement can hinder the ability to provide high-quality tourism services and attract tourists.

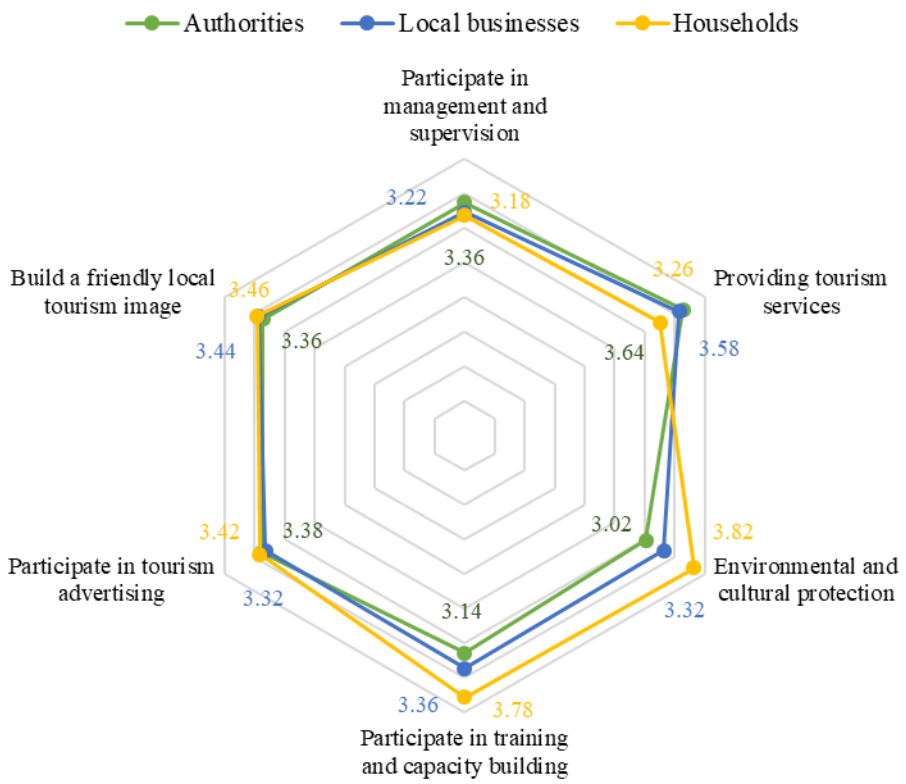

Figure 7.8. Comparison of Local Community Involvement in Ecotourism Activities Between Respondents

A primary way local people participate in ecotourism is through the provision of tourism services such as homestays, food services, and shopping opportunities. The development of ecotourism has contributed to increased job opportunities and economic benefits for local communities. These opportunities include employment with tourism companies as tour guides, porters, or gatekeepers, as well as work in restaurants, shops, and the performance arts along with traditional crafts sectors. A limited number of local families participate in homestay programs, offering tourists a unique cultural experience by staying in traditional homes.

Based on Figure 7.9 and previous analysis, local authorities, businesses, and households share similar assessments regarding the factors 'participation in management and supervision', 'participation in tourism promotion', and 'building a friendly local tourism image'. This is a positive sign, indicating a consensus and shared awareness of the importance of these factors for the sustainable development of ecotourism. However, there are notable differences in the evaluations of the three groups (authorities, local businesses, and households) concerning the factors 'provision of tourism services', 'environmental and cultural protection', and 'training and capacity building'. Households rated these factors higher than the other groups. This is understandable since households are directly involved in providing accommodation, food services, or other tourism-related services. They have a strong motivation to improve service quality to attract tourists. In addition, as residents of the area, they have a clearer understanding of the importance of protecting the environment and cultural heritage.

7.2. Results of Interviews with Local Stakeholders

This subchapter presents qualitative research findings, offering deeper insights into aspects of ecotourism development in the Binh-Tri-Thien (BTT) region. First, the demographic characteristics of interview participants, including management officials and local community members, are described. Next, interviews with management officials shed light on professional perspectives regarding ecotourism potential, challenges and opportunities, and effective management strategies. Concurrently, interviews with local community members provide direct insights into the impacts of ecotourism, their level of participation, and their roles in decision-making and resource conservation. The final part draws key conclusions, serving as a foundation for comprehensive evaluation and appropriate solution proposals.

7.2.1. The Demographic Background of Participants

This section provides information on the demographic characteristics of the interviewees in the BTT region, including the manager sample and the local community sample. This analysis offers a detailed insight into the study groups, thereby clarifying the factors influencing their participation in the ecotourism sector in the region.

Manager Sample

Interviews with management staff were conducted, categorizing them into three primary groups: local government officials – those who make decisions and are accountable for tourism-related policies in the BTT region; national park managers – experts in natural

conservation and reserve management; and cooperative managers – representatives of the local community playing a crucial role in developing community-based ecotourism.

The socio-demographic analysis of ecotourism management personnel reveals notable characteristics in terms of gender, age, and educational background (Table 7.14). Males predominated in the sample, making up 69.2% of those involved in ecotourism management, especially in senior positions. This reflects the broader situation in Vietnam's tourism sector, influenced by social biases, and differential access to education and training opportunities. The majority of respondents were between 29 and 48 years old, indicating a middle-aged group. This age range suggests that most individuals possess extensive work experience and have accumulated substantial knowledge and skills in management. All interviewees from the manager sample had at least a university degree, with several holding a master's degree, highlighting their high level of professional qualifications suitable for management roles.

Table 7.14. Socio-demographic Characteristics of the Manager Sample

Demographics	**Description**	**Quantity** (people)	**Percent**
Gender	Male	9	69.2
	Female	4	30.8
Age (years)	18–28	0	0.0
	29–48	9	69.2
	49–65	3	23.1
	>65	0	0.0
Education level	Primary	0	0.0
	Secondary	0	0.0
	University	11	84.6
	Postgraduate/Master/Ph.D.	2	15.4
Professional activities	Local government officials	4	30.8
	National park managers	5	38.5
	Cooperative managers	4	30.8

Local Community Sample

The interviewees ranged from 29 to 65 years of age, only 27.3% of respondents were women. Regarding age distribution, the largest group falls within the 29–48 age range, followed by the 49–65 age range, while smaller proportions are represented in the 18–28 and over 65 age groups (Table 7.15). Most interviewees were born and raised in their hometowns, indicating a deep connection to the locality in both physical and cultural terms. This reflects the strong ties between personal and community life, where the inheritance of land, property, and occupations across generations remains customary. Families in areas like the Phong Nha-Ke Bang National Park and the Bach Ma National Park have leveraged tourism growth to offer services such as homestays, guided tours, and even basic amenities like parking and

restrooms. This flexibility in responding to tourist demand allows communities to increase income, yet tourism participation here remains largely seasonal, with most businesses operating only during peak seasons. Seasonal tourism participants reported that, outside of high season, they engage in agriculture, mainly cultivating corn and sugarcane or tending livestock. In addition, interviewees from the A Nor Waterfall work in forestry, while those in the Ngu My Thanh Village engage in aquaculture and fishing in the Tam Giang Lagoon. This seasonal fluctuation in tourism presents challenges for income stability and employment opportunities, as residents alternate between agricultural and tourism work. The integration of agriculture and tourism could offer a sustainable solution, but supportive policies are necessary to help residents maintain their livelihoods year-round.

Table 7.15. Socio-demographic Characteristics of the Local Community Sample

Demographics	**Description**	**Quantity** (people)	**Percent**
Gender	Male	16	72.7
	Female	6	27.3
Age (years)	18–28	5	22.7
	29–48	7	31.8
	49–65	7	31.8
	>65	3	13.6
Education level	Primary	2	9.1
	Secondary	9	40.9
	University	10	45.5
	Postgraduate/master/Ph.D	1	4.5
Professional activities	Tourism business owners	7	31.8
	Households	15	68.2

7.2.2. Interview Managers Representatives

This section presents the results of interviews conducted with local managers, focusing on three main topics: 1) the potential for ecotourism development in the Binh-Tri-Thien (BTT) region; 2) information on tourist attraction levels in the area; and 3) the labor resources available at local tourism sites. These topics will provide insight into the fundamental factors that contribute to or hinder ecotourism development in the BTT region.

Potential for Ecotourism Development in the Binh-Tri-Thien Region

All interviewed management officials agreed that ecotourism sites in the BTT region possess unique values, from natural landscapes to indigenous culture, which collectively contribute to significant ecotourism potential. Each site in the area features distinct ecosystems and natural heritage. The Phong Nha-Ke Bang is renowned for its magnificent caves and diverse ecosystems, while the Bach Ma National Park is characterized by vast, pristine forests. The A

Nor Waterfall attracts visitors with its majestic waterfall, and the Ngu My Thanh exudes coastal cultural richness, highlighted by traditional fishing village activities.

For instance, one official emphasized the geological and ecological richness of Phong Nha-Ke Bang:

> 'The caves of Phong Nha-Ke Bang are like a natural geological museum, holding mysteries from millions of years of formation. […]. I have lived and worked here for many years. Yet, I never tire of exploring it. It would be hard to find another tourist site like this' ([6]*I3, F35y, Member of the Phong Nha-Ke Bang national park managers)*

Similarly, another official from Bach Ma National Park underlined both the park's biological significance and the challenges of sustainable management:

> 'The Bach Ma Park boasts a high level of biodiversity with unique primary forests. We are eager to share this beauty with the world, but we fear that if managed improperly, it could lose its allure, as has happened with other tourist destinations' *(I5, F41y, Member of the Bach Ma national park managers)*

Furthermore, the interviewees highlighted that the BTT region is home to many ethnic minorities, each with its unique traditional culture. This represents a vital cultural resource for developing ecotourism that integrates community experiences and indigenous cultural preservation. Festivals, customs, and traditional crafts can become appealing tourism products, attracting visitors who are passionate about cultural exploration.

For instance, a representative from the A Nor cooperative highlighted the importance of sustainable development in tandem with cultural preservation:

> 'The beauty of the A Nor Waterfall is undeniable […]. The question is how to sustainably develop it. Fortunately, it was designated a community-based ecotourism site in 2022. This is an opportunity for us to implement plans long in the making' *(I10, M43y, Member of the A Nor cooperative managers)*

Meanwhile, a manager from Ngu My Thanh village underlined the richness of coastal culture and efforts to sustain traditional livelihoods amid growing tourism:

> 'The Ngu My Thanh Village is rich in coastal culture, with traditional fishing practices and unique local cuisine. Our craft village has a long history, closely linked to the sea. Since the advent of tourism, we have tried to maintain fishing activities' *(I13, M34y, Member of the Ngu My Thanh cooperative managers)*

Despite its great potential, ecotourism sites in the BTT region face numerous challenges in management and sustainable conservation. Interviewees in the Phong Nha-Ke Bang

[6] I: Interviewer; F: Female; M: Male; y: years old.

National Park pointed out that people in buffer zones continue to rely on natural resource extraction, putting significant pressure on the ecosystem. Illegal logging and wildlife poaching persist, threatening the ecological balance and depleting rare flora and fauna.

> 'Although they know it is harmful, many families still have to gather firewood in the forest for cooking due to the lack of alternative energy sources. Additionally, to make a living, some still hunt wildlife. Frankly, it is difficult to handle such cases because of their economic hardship' *(I3, F35y, Member of the Phong Nha-Ke Bang national park managers)*

According to interviewees from the Bach Ma National Park, one of the biggest weaknesses in ecotourism development is the lack of integrated infrastructure. Poor transportation, inadequate public transit, and insufficient amenities negatively impact the visitor experience. Overcrowding during peak seasons leads to environmental pollution, diminishing the area's appeal.

> 'Overall, our transportation system is too outdated, repurposed from the colonial era. Last year, heavy rain caused severe landslides on the road to Bach Ma's summit. We had to close tourist access for six months, awaiting provincial decisions and funding for repairs' *(I6, M51y, Member of the Bach Ma national park managers)*

Interviewed managers at the A Nor Waterfall stated that efforts to promote and attract international visitors are limited, primarily due to insufficient funds for marketing activities. With a limited budget, the A Nor Waterfall cannot participate in international tourism fairs or invest in advertising on international platforms like Facebook, Google, or develop a multilingual website, which restricts access to foreign tourists. Moreover, marketing at the A Nor Waterfall relies on low-cost channels, such as distributing brochures, posting posters at domestic tourist sites, and word-of-mouth. While effective for domestic tourists, these channels are inadequate for reaching international visitors, who typically access information through online platforms and international travel websites. The management expressed that with greater funding, they could invest in multimedia campaigns on international channels or on adventure travel websites to highlight the A Nor Waterfall's natural scenery and unique culture.

> 'We want to promote the A Nor Waterfall to the world, but our budget is too limited. International visitors often search for information online, but our website is very basic and lacks details' *(I11, M48y, Member of the A Nor cooperative managers)*

> 'There is significant potential, but current difficulties lie in marketing and advertising, especially in attracting international tourists […]. Collaborating with international tour operators and popular travel bloggers would effectively promote the image of the A Nor Waterfall' *(I10, M43y, Member of the A Nor cooperative managers)*

Managers at the Ngu My Thanh Village identified natural disasters, especially floods, as the greatest obstacle to the area's ecotourism potential. Each rainy season, the village frequently faces severe flooding, which damages tourism infrastructure such as roads, bridges, and public facilities. For instance, many access roads to the village and tourist facilities like community centers, rest stops, and public restrooms are inundated and severely degraded after each flood. This not only increases maintenance costs but also negatively affects visitor experience, particularly for international tourists from areas less affected by natural disasters. Moreover, several households in the Ngu My Thanh Village have invested in homestays for tourists but face challenges in maintaining stable operations due to frequent natural disasters. For example, during the year-end flood of 2023, many households had to halt operations for nearly a month, suffering both physical damage and a significant loss of income from tourists. Furthermore, major storms contribute to soil erosion and the loss of protective forests, adversely impacting the ecosystem and natural landscape, diminishing the village's pristine beauty – a major attraction for tourists.

> 'Every rainy season, people live in fear. Roads are flooded, houses damaged, and life disrupted. Last year, after the storm, most households' homestays were submerged, with all belongings lost. It took months to recover' *(I12, F49y, Member of the Ngu My Thanh cooperative managers)*

> 'Natural disasters not only cause material losses but also affect residents' morale. After each flood, people have to start all over again. This reduces their enthusiasm for tourism development […]]. In the past, tourists loved visiting the Ngu My Thanh for its untouched natural scenery and unique local culture. But after multiple storms, many areas have been damaged, no longer retaining their original beauty. This makes visitors feel disappointed and less inclined to return' *(I13, M34y, Member of the Ngu My Thanh cooperative managers)*

The Visitor Data Collection System at Tourist Destinations

Through interviews, management officials indicated that the BTT region currently has a basic system in place to record statistical data on ecotourism visitor numbers. At sites such as the Phong Nha-Ke Bang National Park and the Bach Ma National Park, monitoring visitor numbers via entry gates has proven effective in tracking the volume of tourists. Each visitor is recorded upon entry, enabling real-time management of visitor-related metrics. Furthermore, with advancements in technology, online ticket booking at these sites has been implemented, facilitating convenience for tourists and ensuring accurate data collection on ticket sales. The online booking system allows management officials to track and project visitor numbers in the coming periods. In addition to ticket sales records, periodic surveys are conducted to gather further information on visitor origin, demographics, and satisfaction levels. These

surveys provide a detailed view of the tourist profile, including the proportion of domestic and international tourists, visitor needs, and consumption trends.

One official from Phong Nha-Ke Bang emphasized the dual benefits of technology adoption in tourism management:

> 'We have implemented an entry ticket control system for years [...]. Online booking has brought numerous benefits to both visitors and management units. Visitors can easily book tickets and plan their trips, while we can gather data on customer demand to develop suitable tour packages. Especially during the pandemic, the online ticketing system helped us maintain operations and recover quickly' (I4, M43y, *Member of Phong Nha-Ke Bang national park managers)*

In addition, one manager from Bach Ma National Park noted:

> 'We regularly conduct surveys to gain deeper insights into visitor behavior. This enables us to identify the strengths and weaknesses of tourism products, as well as emerging trends. For example, we've noticed an increasing interest among tourists in cultural experiences and nature conservation activities. Based on this information, we have developed new tourism programs' *(I8, M36y, Member of Bach Ma national park managers)*

However, at the A Nor Waterfall and the Ngu My Thanh Village, it is noteworthy that no formal and automated system currently exists for recording visitor numbers at these two sites. Instead, data on tourist volume is primarily collected manually through homestay business households and cooperative management officials. Although this manual system can provide basic information, it presents challenges in managing, analyzing, and forecasting tourism development. Consequently, data collection across different tourist sites is fragmented and lacks consistency, making it challenging to analyze and evaluate comprehensive visitor data. Each location may have its own data recording and reporting method, complicating planning and accurate forecasting. Moreover, without an accurate visitor recording system, management officials find it difficult to assess the impact of tourism on the ecosystem at tourist sites, making it hard to implement timely and effective conservation measures.

For example, one official from the A Nor Waterfall cooperative explained:

> 'Currently, we primarily rely on reports from business households and local officials, but this information is often incomplete, inaccurate, and difficult to compare. This makes it challenging for us to make effective management decisions' *(I10, M43y, Member of A Nor cooperative managers)*

Similarly, concerns were raised by a representative from the Ngu My Thanh cooperative regarding the operational consequences of unreliable data:

> 'The absence of an official statistical system makes it very difficult for us to plan our operations.

> We are unaware of when peak seasons are, or whether visitor numbers will increase or decrease in the future, which makes it difficult to stock goods, manpower, and other services' *(I12, F49y, Member of Ngu My Thanh cooperative managers)*

Labor Resources at Tourist Destinations

The disparity in personnel quality across tourist sites in the BTT region reflects the level of ecotourism development and investment in each locality. According to management officials, Phong Nha-Ke Bang National Park stands out with a significant number of well-trained tour guides due to the region's robust tourism growth over recent years. In-depth ecotourism training programs have been implemented, thanks to support from non-governmental organizations and sustainable development initiatives. Employees frequently participate in workshops and short courses where they gain knowledge on environmental awareness, local culture, and customer service skills.

> 'Each year, management sends me to participate in ecotourism training courses. Through these, I have learned a great deal about environmental protection, interacting with tourists, and engaging storytelling. I always strive to provide visitors with useful information to help them better appreciate the value of our natural heritage and understand the importance of environmental conservation' *(I5, F41y, Member of Phong Nha-Ke Bang national park managers)*

At the Bach Ma National Park, the workforce demonstrates a relatively consistent level of service capability. However, many employees here lack specialized training in environmental protection and local culture. This gap hinders the effectiveness of conveying information to tourists. Employees not only need to master basic knowledge but also to convey conservation messages to visitors, helping them understand the importance of preserving both the environment and local culture. This was acknowledged by one staff member:

> 'I love my job and always strive to provide the best information for tourists. However, at times, I find it challenging to answer in-depth questions about the ecosystem or local culture. I realize I need further training in these areas to feel more confident' *(I8, M36y, Member of Bach Ma national park managers)*

In contrast, the staff at the A Nor Waterfall are primarily local residents with varying levels of education and professional skills. Although they possess a rich understanding of traditional culture, this alone does not meet the demands of the tourism. The staff here lack formal training in tourism services, resulting in an inability to provide accurate and engaging information to visitors. A manager at the site emphasized this need:

> 'Recruiting local residents is a promising direction, but there is a need for regular and

comprehensive training programs to improve their competencies. Beyond tourism knowledge, staff also need soft skills such as communication, teamwork, and problem-solving to serve customers professionally' *(I11, M42 years old, Member of A Nor cooperative managers)*

At the Ngu My Thanh Village, the low quality of personnel is due to limited training opportunities. This shortfall impacts the overall tourist experience, as staff often lack essential communication and service skills. The absence of these skills not only affects service quality but also diminishes the destination's appeal to tourists.

'Most families engage in tourism spontaneously and rely mainly on personal experience, which no longer aligns with modern trends. We are aware of this, but all must wait for budget allocation to organize intensive tourism training courses' *(I13, M34y, Member of Ngu My Thanh cooperative managers)*

Future Trends and Plans for Ecotourism Development

Management officials observe that visitor preferences at tourist sites in the BTT region are gradually shifting from conventional tourism activities to experiences linked with nature and cultural conservation, especially as the demand for sustainable tourism continues to rise. A prime example is the the Phong Nha-Ke Bang National Park, where ecotourism tours, such as exploring the Son Doong and Tu Lan caves, have attracted a substantial number of international visitors. These tours not only allow guests to witness breathtaking cave systems but also impart knowledge on conservation and the preservation of natural landscapes. Here, tourists are encouraged to participate in activities like waste cleanup, ecosystem protection, and learning about forest conservation from the local community. This opens up opportunities for developing activities like volunteer tourism, where visitors can engage in conservation projects. Initiatives like tree planting and cave ecosystem restoration have garnered significant interest from various tourist groups.

'The fact that tourists are willing to participate in environmental protection activities, such as cleaning up trash and planting trees, shows their sense of responsibility towards the community and the environment. This is a very positive signal, showing that sustainable tourism is becoming an inevitable trend' *(I3, F35y, Member of Phong Nha-Ke Bang local government officials)*

Meanwhile, the Bach Ma National Park is promoting wellness tours combining meditation and yoga to cater to a new segment of visitors seeking relaxation experiences amidst pristine nature. Known for its fresh climate, diverse tropical forest ecosystem, and natural streams, the Bach Ma National Park is an ideal destination for those wanting to reconnect with nature.

Combining wellness tourism with ecotourism is a new and promising direction. With its fresh

climate, diverse ecosystem and quiet space, the Bach Ma National Park is an ideal place to combine tourism with wellness. By combining meditation, yoga and other natural therapies with nature exploration, we want to bring visitors a unique and unforgettable experience' *(I1, M32y, Member of Bach Ma local government officials)*

At the A Nor Waterfall, visitors previously came mainly to admire the waterfall's beauty, but now they desire to engage in hands-on activities with local residents, such as learning traditional weaving or participating in local festivals. Thus, future development plans will focus on capitalizing on the potential of community-based ecotourism. This destination, home to ethnic minorities, combines nature exploration with traditional cultural experiences as the main development direction. The A Nor Waterfall is fostering activities like participating in folk festivals, learning handicrafts and local cuisine, and enhancing the training of local guides. This approach not only helps improve service quality but also creates sustainable employment opportunities for locals, helping them preserve traditional cultural values.

Our goal in the future is to create a comprehensive tourism experience where visitors can not only admire the natural beauty but also immerse themselves in the life of the community, learn traditional skills and explore the unique cultural beauty of the A Nor waterfall *(I10, M43, Member of A Nor cooperative managers)*

At the Ngu My Thanh Village, known for its traditional fishing practices, modern tourists are also inclined toward experiences closely related to fishermen's daily life. Activities such as rowing basket boats, harvesting seafood, and processing marine products have attracted visitors eager to learn and understand the coastal lifestyle. Rather than just sightseeing, tourists now want to participate directly and contribute to preserving culture and the marine ecosystem. Therefore, future development plans focus on creating tourism products tied to traditional trades, such as seafood processing and fishing experiences. This is a crucial component of community-based tourism, where visitors can experience coastal life and learn about the fishing traditions of the people.

'My village is not only a peaceful fishing village but also a living museum of marine culture. We want to invite visitors here to experience the life of fishermen, learn how to row a basket boat, catch fish, and enjoy the freshest seafood. By doing so, we not only preserve traditional cultural values but also create unique and memorable travel experiences for visitors' *(I12, F49y, Member of Ngu My Thanh cooperative managers)*

Manager Interview Summary

In conclusion, interviews with ecotourism management officials across the BTT region provide a clear picture of the potential and challenges for sustainable ecotourism development. Despite possessing unique natural and cultural values, such as the cave system of the Phong Nha-Ke Bang National Park, the primeval forest in the Bach Ma National Park, the majestic the A Nor Waterfall, and the traditional fishing village of the Ngu My Thanh Village, the BTT region still faces obstacles in conservation and management. Issues such as illegal resource exploitation and infrastructure limitations, particularly in transportation and public facilities, impact sustainable tourism development, increasing pressure on ecosystems and diminishing visitor experience. Furthermore, there are shortcomings in promotion and data tracking, especially at the A Nor Waterfall and the Ngu My Thanh Village, where the lack of automated data collection systems and limited international promotion budgets reduce the potential to attract international visitors and hinder tourism development. Interviews also highlight the need for standardized data management systems to support visitor analysis, forecast visitor volumes, and assess environmental impacts, enabling the implementation of appropriate conservation measures and meeting the demands of sustainable ecotourism development. Results from the interviews indicate that to achieve sustainable development and effectively leverage the region's ecotourism potential, the BTT tourism sites must focus on enhancing infrastructure investment, developing international promotion strategies, and closely collaborating with the community to implement conservation measures for local natural and cultural heritage.

7.2.3. Interview Local Communities Representatives

This section will present the results of interviews conducted with local communities, focusing on three main topics: 1) the impacts of ecotourism on local communities; 2) the level of community participation in ecotourism activities; 3) the decision-making processes as well as community involvement in conservation activities; 4) participation in training and capacity building; and 5) engaging in tourism promotion. These topics not only illuminate the benefits and challenges that ecotourism brings to the lives of local residents but also reflect their role in managing and protecting the natural environment, thereby contributing to the sustainable development of the region.

The Impact of Ecotourism on Local Communities

All interviewees agreed that ecotourism has undoubtedly brought positive effects to the area. One of the greatest benefits of ecotourism is the economic opportunity provided to residents. Households running homestays and other tourism-related services reported a significant increase in income. These services offer a more stable income than traditional occupations like agriculture or fishing. Some families shared that tourism income has greatly improved their quality of life, reducing economic burdens, allowing them to build better homes, and upgrading village infrastructure.

For example, a homestay operator from Phong Nha-Ke Bang National Park shared:

> 'My family used to rely solely on agriculture, with unstable income. […]. Since we started our homestay business, life has become much more stable' *(I2, M51y, Member of Phong Nha-Ke Bang tourism business owners)*

This sentiment was echoed by a tourism entrepreneur from Bach Ma National Park:

> 'Thanks to tourism, I can earn a more stable income than I did with fishing. We have been able to repair our home and upgrade many things in the village' *(I5, M54y, Member of Bach Ma tourism business owners)*

Similarly, respondents in A Nor also acknowledged the transformative potential of community-based tourism:

> 'Ecotourism has provided us with tremendous economic opportunities. Not only do we earn additional income, but we can also work from home without having to leave our hometown' *(I7, M39y, Member of A Nor tourism business owners)*

Tourism has also created new job opportunities for family members, particularly during peak tourist seasons. In addition to providing accommodation services, they can engage in other activities like food provision and selling local products. These jobs often do not require high expertise but demand hard work and adaptability. Another advantage mentioned was flexibility in job choices. Previously, their only options were farming, forestry, or fishing, but with the growth of tourism, they can combine both sectors. During peak seasons, locals can focus on tourism, and when visitor numbers drop, they return to agriculture. This combination allows people to maximize their resources and time, ensuring a more sustainable income.

As some household representatives from Ngu My Thanh Village noted:

> 'During the high season, the whole family has extra work, from cooking for guests to selling handicrafts. Income is much better than solely relying on farming' (I3, F44y, Member of Ngu My Thanh tourism business owners)

'Tourism allows me to make the most of my time, balancing farming when I am free and earning extra income from serving tourists. Life is much more stable' *(I11, M30y, Member of Ngu My Thanh households)*

Although tourism income is higher, the workload also increases considerably, especially during peak season. Families running homestays must dedicate significant time to guest services, room cleaning, meal preparation, and guest interactions. Some interviewees acknowledged that the workload sometimes becomes overwhelming, leaving them exhausted and with limited time for traditional activities or family. This suggests that despite the economic benefits, the development of tourism also requires locals to sacrifice time and effort.

'During peak season, when guests are numerous, my children and I work continuously with little time for rest. It is exhausting, but we cannot stop because the income is good' *(I8, F36y, Member of Phong Nha-Ke Bang households)*

The interviews reveal a noticeable difference among tourism sites regarding the perceived impact of ecotourism on local cultural identity. Interviewees at the Bach Ma National Park and the Phong Nha-Ke Bang National Park asserted that tourism does not alter the region's cultural identity. In fact, it allows them the opportunity to introduce traditional culture to tourists. Cultural activities such as festivals, local cuisine, and handicrafts are highly valued, instilling pride in local people. Tourists not only bring income to the community through purchasing handicrafts but also foster cultural exchange opportunities. Residents feel that tourists bringing their culture does not disrupt local customs; on the contrary, it enhances mutual understanding.

'Visitors come not only to explore nature but also to learn about our culture. They appreciate our traditional festivals, unique cuisine, and handicrafts. It makes us proud of our identity' *(I18, M31y, Member of Phong Nha-Ke Bang households)*

'We see visitors bringing their culture here as normal. It is part of cultural exchange. […]. What is important is that we preserve our unique identity' *(I12, M31y, Member of Bach Ma households)*

In contrast, interviewees at the A Nor Waterfall, especially ethnic minorities, felt that tourism has not significantly benefited them. They feel restricted from traditional activities such as shifting cultivation and hunting due to environmental protection regulations, leading to a decline in cultural values like forest worship and land offerings. Changes in living conditions, such as living in brick-and-tile houses, have considerably diminished traditional

values. This indicates that at least certain forms of ecotourism development do not always align with cultural preservation.

As one local resident explained:

> 'We are no longer allowed to cut trees or clear forests for farming to protect the World Heritage landscape. With limited land for farming and hunting, our livelihoods are challenging, and traditional cultural values, especially forest and land offerings, are gradually fading' *(I15, M31y, Member of A Nor households)*

Similarly, discomfort with new living arrangements was noted:

> 'We're not accustomed to living in brick-and-tile houses, close together, without gardens [...], our customs are different' *(I20, F57y, Member of Ngu My Thanh households)*

Another issue raised in the interviews is the cultural clash between local communities and international tourists, particularly regarding attire and behavior. In traditional villages such as the Ngu My Thanh Village and the A Nor Waterfall, interviewees felt uncomfortable with visitors, especially international tourists, wearing revealing clothing that is not in line with local culture. They believe this not only causes discomfort for locals but also influences the younger generation, altering their perspective on traditional cultural values. They suggested that clear signs and regulations on attire and behavior should be established to protect local culture and customs.

> 'Their clothing is too revealing […], some young people in the village have started imitating it, and it's uncomfortable' *(I6, F66y, Member of A Nor tourism business owners)*

> 'We want visitors to understand and respect our culture. They should learn about local customs before coming here […], there should be clear signs and rules on attire and behavior in public areas' *(I13, M25y, Member Ngu My Thanh of households)*

In addition, at the Ngu My Thanh Village, interviewees have started to observe an increase in security issues, including theft and harassment, since tourism numbers have risen. They shared that the area used to be very peaceful, but now they feel more concerned about public order, especially at night. However, this issue was not mentioned at other tourist sites. This difference may be due to management approaches or local reluctance to share information on sensitive issues.

> 'In the past, my village was very peaceful. Since more tourists have come, the security situation has become more complex. There have been thefts, making residents feel uneasy' *(I19, M23y, Member of Ngu My Thanh households)*

> 'I feel worried when going out alone, especially at night. There are groups of strangers gathering,

drinking, causing disorder' *(I21, M52y, Member of Ngu My Thanh households)*

Beyond cultural and security concerns, tourism activities also impact the environment and local life. The interviews revealed that noise from visitors' recreational activities has become a disturbance for local communities. Although some areas, such as the Phong Nha-Ke Bang National Park and the Bach Ma National Park, have strict regulations on noise restriction at night to protect wildlife and maintain tranquility, noise control has not been adequately enforced in many other areas.

'The noise from tourist groups, especially at night, disrupts our sleep and daily routines […], I also know the national park has a noise restriction after 9 p.m. Violators are expelled' *(I12, M31y, Member of Bach Ma households)*

'They assume it is normal for us to clean up their trash […] They pay, so we are expected to clean up. It is frustrating' *(I14, M35y, Member of Phong Nha-Ke Bang households).*

Local Community Participation in Ecotourism Activities

Consistent with the survey findings presented in section 7.1.4, interviews indicate that residents in the Binh-Tri-Thien (BTT) region primarily participate in ecotourism by offering services such as homestays, food services, and shopping opportunities. Engaging with international tourists not only generates income but also fosters enjoyment and excitement from interactions with diverse cultures. Some interviewees expressed that staying busy with tourists has provided them with a more meaningful life. Additionally, through these activities, they feel a sense of pride in their ethnic identity and strengthen their ties to both community and natural landscapes. However, language barriers were identified as the most significant challenge in communicating with foreign tourists. This language gap may sometimes lead to misunderstandings in interactions and reduce the effectiveness of tourism services.

'My homestay has become an essential part of the village. I feel truly happy sharing my living space with visitors and exploring nature's beauty with them' *(I9, M34y, Member of Phong Nha-Ke Bang households)*

'Often, we can only manage basic greetings; conversations do not go far […] We need more English classes to communicate with tourists' *(I14, M35y, Member of Phong Nha-Ke Bang households)*

When asked about government involvement and support in tourism business activities, interviewees shared mixed opinions. Those from the Phong Nha-Ke Bang National Park and the Bach Ma National Park reported that the park management offers local tourism operators training courses, where they learn customer service skills. Additionally, other free courses

provided include first aid and emergency response training. Along with these training courses, the interviewees noted that the park management supplies paint for boat maintenance, life jackets, and other river boating equipment. They also shared that the the Phong Nha-Ke Bang park management enforces safety regulations, such as mandatory life jacket use on the river and restricting car access to the park. In contrast, residents in the A Nor Waterfall felt a lack of governmental support. They reported that damages caused by storms to tourism facilities and rest huts have not received attention or repair from the government, which has created challenges for maintaining tourism operations.

> 'The first aid training is very beneficial, especially when working in a tourism environment. I feel more secure knowing I can handle emergencies' *(I19, M23y, Member of Ngu My Thanh households)*

> 'They (the park management staff) provided fuel, life jackets, and boat paint after the storms […] We are very grateful' *(I29, M51y, Member of A Nor households)*

When asked about gender issues in participating in ecotourism activities, most interviewees felt uncomfortable discussing the topic. Gender inequality in ecotourism, particularly in mountainous areas where many ethnic minorities reside, is an important yet often overlooked issue in sustainable tourism research. In these regions, local culture, traditions, and socio-economic conditions heavily influence gender roles in both the community and the ecotourism sector. In Vietnam in general, and the BTT region in particular, many mountainous ethnic minority communities assign roles to men and women based on traditional norms and gender-based labor divisions (Teerawichitchainan et al., 2010). This division affects how men and women participate in ecotourism activities. Interviewees suggested that men typically hold roles as tour guides, tourism activity managers, or those responsible for building and maintaining infrastructure (such as huts and trails). Men are regarded as the community representatives when interacting with tourists, particularly in areas that require knowledge of the forest, wildlife, and nature exploration activities. Meanwhile, women often participate in supportive roles such as preparing meals, cleaning, or producing handicrafts (weavings, jewelry) to sell to tourists.

> 'Traditionally, we women have always been responsible for household chores and childcare. Going into the forest or guiding tourists has always been men's work. I'm not accustomed to engaging with strangers, especially tourists – it feels strange' *(I8, F36y, Member of Phong Nha-Ke Bang households)*

> 'I feel it is unfair that men are always given more priority. We can also perform well in roles outside the household. I would love to be a guide like the men, but opportunities are scarce. I think

it is because I have children and health limitations, so I am not prioritized' *(I17, F54y, Member of Bach Ma households)*

The Decision-Making Process and Local Community Involvement in Conservation

Consistent with the survey results presented in section 7.1.3, the level of local community participation in environmental and cultural management, monitoring, training initiatives, and the promotion of tourism is relatively low. The majority of interviewees indicated that they had been invited to discussions about ecotourism development, particularly in areas directly related to their livelihoods, such as the A Nor Waterfall and the Ngu My Thanh Village. However, this participation remains limited and is primarily consultative rather than involving formal decision-making. Most projects are initiated by government authorities or large tourism organizations without the consultation or involvement of the local community. This reflects a limitation in the process of decentralization and the division of responsibilities among stakeholders, particularly as community involvement is often restricted to providing feedback rather than having power in decision-making. This creates an imbalance of power between the local community and tourism development organizations, leaving residents feeling they have no control over issues directly affecting their lives and livelihoods.

'We are invited to meetings but only to listen; our opinions are not implemented. They think they are smarter and have a broader vision than us. But this is our homeland, and we also have a responsibility to protect it' *(I4, F20y, Member of the A Nor tourism business owners)*

Only the interviewees from the Phong Nha-Ke Bang National Park mentioned that local residents working in tourism are those who continually monitor and engage with the tourism sector, making them experts in identifying whether areas lack any facilities. For instance, if there are deficiencies in camping areas, sanitation facilities, or trash bins, it is the local residents who report these shortages to the authorities, who then support the construction of additional facilities. They prepare observation reports that may include complaints and feedback from tourists to indicate specific areas needing development. Subsequently, the government assesses the situation and supports development projects within the limits of available resources. This reflects active community participation in the implementation and adjustment of projects. However, this model still relies on whether the community's voice is heard and whether there is swift action from the authorities. If their voices are only acknowledged without concrete improvement actions, this process may lead to a loss of trust in the effectiveness of participation.

One issue that some interviewees in the A Nor Waterfall expressed concern about is the selection of households to participate in business within certain projects, which was not conducted fairly, leading to disputes and dissatisfaction. This reflects a situation where the community's involvement process is sometimes opaque, undermining their motivation and ability for sustainable engagement. For example, in the A Nor Waterfall, seven households registered to participate in the homestay business, receiving $600 per household from the district to purchase bedding and renovate their homes and gardens. However, the selection of households for participation was unclear, causing significant contention among households.

> 'My family and many others are very disappointed. We are all poor households with many children. I wonder if there are clear criteria for selection. This easily leads to misunderstandings and a loss of unity in our community' *(I30, F55y, Member of the A Nor households)*

As mentioned earlier, in mountainous regions, particularly among ethnic minority communities, decision-making authority often rests with men. Women have fewer opportunities to engage in discussions and important decisions regarding ecotourism development, such as profit-sharing, defining development strategies, or establishing tourism management regulations. Interviewees in the A Nor Waterfall indicated that men are seen as representatives of the community in meetings with local authorities or development organizations. This further reinforces the role of men in controlling resources and benefits from tourism. Consequently, women's voices are limited in shaping the direction of ecotourism development and the allocation of tourism-related resources. One consequence of gender inequality is that women's financial autonomy is restricted. Observations reveal that women here lack property rights, which makes them economically dependent on men. This also applies to the tourism sector, where men control the majority of income-generating activities.

Participation in Training and Capacity Building

Mayaka and Akama (2007) make the point that training and capacity-building programs have played a significant role in improving the human-environment relationship by equipping local communities with essential knowledge and skills. In key areas such as the Phong Nha-Ke Bang National Park and the Bach Ma National Park, international development projects have implemented training courses on tourism skills, resource management, and foreign language communication. According to interviewees, the management teams in these areas also organize specialized courses on first aid, emergency response, and communication skills for interacting with tourists. These courses are often provided free of charge, along with material

support such as life jackets, boat paint, and equipment for kayaking activities. Additionally, safety regulations, such as mandatory life jackets and restricted transportation on certain tourist routes, have been established, contributing to a safe and sustainable experience.

> 'The first aid course was very useful, especially when working in the tourism environment. I feel more at ease knowing I can handle emergency situations' *(I29, M25y, Member of the Phong Nha-Ke Bang households)*
>
> 'They (National Park staff) provided fuel, life jackets, and boat paint after the storms passed [...]. We are grateful for that' *(I25, M42y, Member of the Bach Ma households)*

However, access to these programs remains uneven across regions. At the A Nor Waterfall, the interviewees note that the local community reported a lack of necessary support from authorities, particularly in addressing storm damage. Damaged pavilions and tourism infrastructure were not promptly repaired, disrupting business activities and increasing environmental pressure due to ineffective management.

> 'The storms have damaged many facilities, but we have not received any support from the authorities' *(I28, F36y, Member of the A Nor households)*

Furthermore, due to the limited number of training programs and the lack of consistency in their implementation, only a small portion of the local population has access to capacity-building and training courses. This has created significant disparities in the community's ability to participate in ecotourism activities. Research findings also highlight that challenges in ecotourism projects arise from a lack of local skills and insufficient support for community-based project management. This is particularly evident in the capabilities of national park management teams and cooperatives, who are deeply involved in ecotourism development. These limitations become apparent when they encounter challenges related to the complexity of ecotourism and the specialized knowledge required for effective management, such as understanding ecological impacts, implementing sustainable practices, and marketing suitable tourism products.

> 'I participated in a training course organized by a non-governmental organization, where I learned how to welcome tourists and develop homestay services. Unfortunately, not everyone has the same opportunity as I did' *(I19, M23y, Member of the A Nor households)*

> 'Some members of the cooperative received training, but they could not apply much of it in practice due to the gap between the training program and real-world situations. This is a concerning issue' *(I23, M45y, Member of the Ngu My Thanh households)*

Engaging in Tourism Promotion

Wani et al. (2024) highlight that tourism promotion is not solely the responsibility of management agencies but is closely tied to the local community – those who live and interact directly with the natural and cultural environments at the destination. Interviewed residents contribute significantly to tourism promotion through word-of-mouth, social media, and direct interactions. Stories about local life, customs, and personal experiences help forge close connections with tourists while leaving a strong impression of the area's culture and natural beauty. In addition, photos and videos showcasing festivals, landscapes, or unique aspects of daily life can attract tourists' attention, especially when shared on social media platforms like Facebook, or TikTok.

As one community member explained:

> 'We are proud to share stories about our homeland. Visitors enjoy listening to our stories; they can sit for hours, fully engaged. Sometimes, this becomes the motivation for us to continue our work' *(I10, M43y, Member of the A Nor cooperative managers)*

Another interviewee emphasized the role of digital media:

> 'Social media is an excellent bridge that connects us with tourists. Posts and short videos about daily life have introduced many people to the beauty of our hometown' *(I17, F54y, Member of the Bach Ma households)*

However, local communities face several challenges in participating in tourism promotion. Many community members lack knowledge about using modern communication tools to create engaging content for international audiences. As a result, the region's tourism image is not widely or effectively conveyed to target customers. The lack of professionalism in promotion, limited collaboration with media agencies, and insufficient resources to develop large-scale campaigns have hindered tourism development in these areas.

> 'If someone could guide us on how to write posts or produce professional videos, the tourism image here would definitely gain more attention' *(I14, M68y, Member of the A Nor households)*

> 'We really want to promote the A Nor Waterfall to the world, but the budget is very limited. Foreign tourists often search for information online, but our website is very basic and lacks details' *(I11, M48y, Member of the A Nor cooperative managers)*

Interview Local Communities Summary

The results from the interviews clarify three critical aspects of ecotourism activities within the local community: the impact of tourism on residents' lives, the level of participation of both the people and authorities, and their roles in conservation. First, ecotourism has led to positive

changes in the economic lives of residents, particularly through new income opportunities from homestay services and associated activities, resulting in financial stability and an improved quality of life. However, these benefits sometimes come with increased workloads, creating pressure during peak seasons and posing challenges in balancing work and family life. Moreover, community participation in ecotourism activities is clearly acknowledged. Residents in the BTT region have actively taken on roles as guides, provided lodging services, and sold handicrafts. This not only increases their income but also offers opportunities for cultural exchange and interaction. Nonetheless, barriers such as a lack of foreign language communication skills and gender inequality in labor division continue to limit participation levels for certain groups in the community, especially women. Finally, the issues of cultural and environmental conservation are viewed with a high sense of responsibility by both officials and local residents. Although tourism helps promote local culture, it also carries the risk of cultural dilution, particularly in the ethnic minority communities at A Nor waterfall, where traditional customs such as forest and land worship are struggling to be maintained. Residents also express the need for stringent regulations regarding the behavior and attire of tourists, as well as measures to protect security and the environment in the area. Overall, the interviews emphasize that ecotourism in the BTT has multidimensional impacts. To optimize benefits and minimize negative impacts, promoting support from authorities and conservation measures needs to be prioritized, enabling the local community to truly benefit from the potential of sustainable ecotourism.

One of the main objectives of this qualitative study is to investigate whether there is a conflict between the perspectives of management officials and the local community. The results show that both interviewee groups agree on the positive and negative impacts that ecotourism brings. However, management officials demonstrate a broader understanding of the current tourism situation and its effects on the community and environment. This indicates that they possess a more comprehensive and detailed view of the context and issues related to ecotourism development. Conflicts only arise in the perspectives of certain individuals within the local community, as their remarks often reflect subjectivity and are influenced by personal experiences. Such differences in viewpoints are natural, and achieving absolute consensus among individuals is unrealistic. Instead, these differences reflect the diversity of experiences and perceptions of each person regarding the impacts of ecotourism. Therefore, the research needs to focus on analyzing and interpreting these conflicts, considering them as crucial elements to gain a deeper understanding of the dynamics and impacts of ecotourism in the region. Recognizing and understanding differences in perspectives will contribute to

developing appropriate solutions to enhance community participation and optimize benefits from ecotourism.

Summary of Chapter 7

Chapter 7 presents the research findings from both quantitative and qualitative methods, along with a discussion of key discoveries and the interrelationships between the studied factors.

Regarding the quantitative research findings, the data collected through survey questionnaires provide clear insights into the demographic characteristics of participants, including age, gender, nationality, and their level of involvement in ecotourism activities. The survey results also clarified details of visitors' travel behaviors, such as duration of stay, visited attractions, and preferred services. Notably, the analysis of visitor satisfaction, conducted using the PLS-SEM method, revealed the relationships between service factors, destination quality, and overall visitor satisfaction. This analysis not only yielded specific results but also identified critical factors influencing visitor satisfaction. Furthermore, the study shed light on the extent of local community involvement in ecotourism activities, emphasizing the crucial role of the community in promoting sustainable tourism development.

Regarding the qualitative research results, interviews with representatives of management at ecotourism destinations provided in-depth insights into the potential for ecotourism development at these sites, visitor data collection systems, and local labor resources. The information gathered also highlighted trends and future development plans for ecotourism, particularly strategies aimed at enhancing service quality and increasing visitor attraction. Moreover, interviews with local community representatives clarified the impacts of ecotourism on the community, including economic and social benefits, as well as changes in cultural and environmental aspects of local life. The community members expressed their perspectives on their involvement in ecotourism activities and the influence of conservation decisions on their participation and rights.

The findings demonstrate that the integration of quantitative and qualitative data not only clarifies the factors influencing ecotourism development but also provides detailed and nuanced insights into the current state and potential of tourism destinations. These results form the basis for policy recommendations and solutions to promote sustainable development in next chapter.

Chapter 8. Strategies for Ecotourism Development in the Binh-Tri-Thien Region

This chapter assesses the ecotourism development strategies in the Binh-Tri-Thien (BTT) region based on the analysis of primary and secondary data using quantitative and qualitative methods, as presented in previous chapters. The chapter is structured into two subchapters and sections within them. The first subchapter presents the SWOT/TOWS analysis results, forming the basis for assessing the current situation, while the second subchapter focuses on proposing ecotourism development strategies based on the TOWS matrix. This evaluation provides a comprehensive understanding of the ecotourism potential in the region, highlights the opportunities and challenges faced, and proposes reasonable and sustainable development solutions for the future.

The research process employing the SWOT and TOWS matrix methods is organized into logical steps to optimize sustainable tourism potential (Figure 8.1). It begins with data collection and processing through field studies and literature analysis, followed by identifying internal factors (strengths and weaknesses) and external factors (opportunities and threats). Subsequently, a SWOT matrix is constructed to summarize the relationships among these factors. Based on the SWOT matrix, the TOWS matrix is developed to transform the analysis into specific strategies. Finally, main pathways are identified to promote sustainable ecotourism development, generating economic benefits for local communities while preserving natural and cultural resources, thereby achieving a balance between development and conservation in the long term in the BTT region.

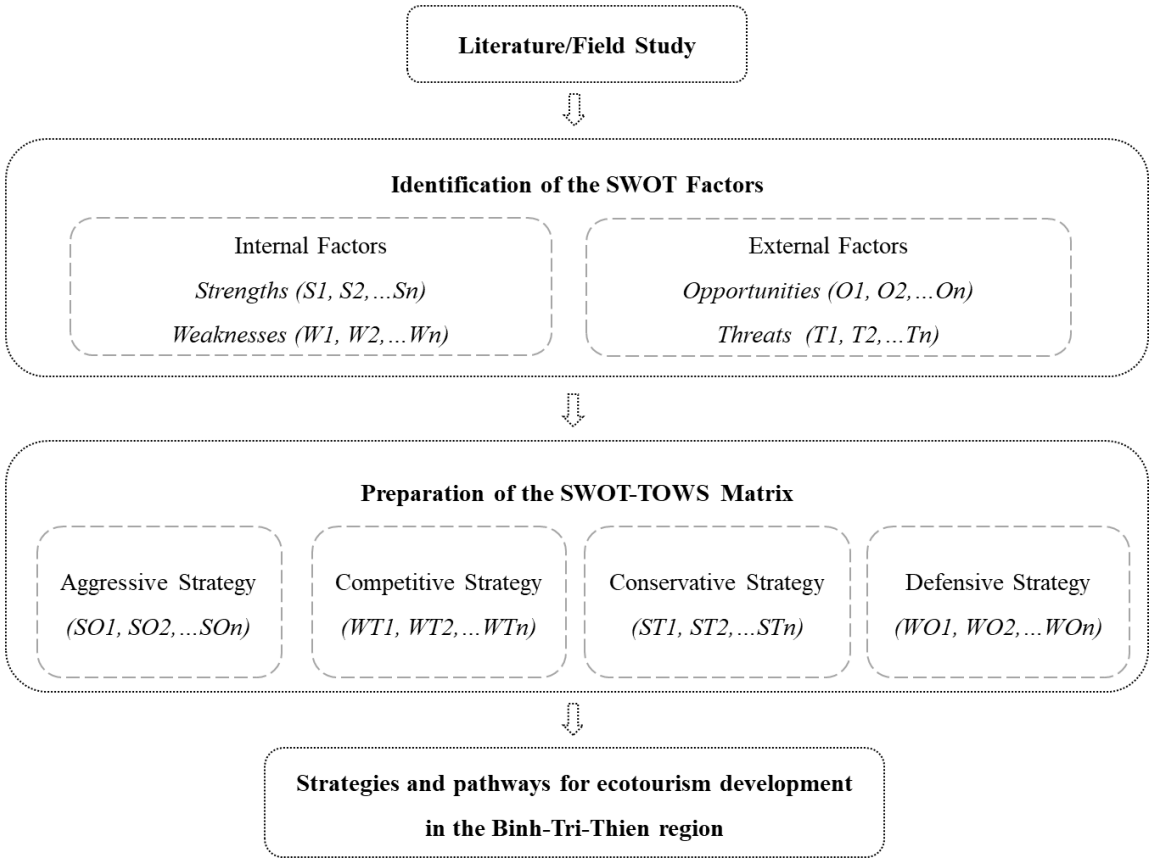

Figure 8.1. The Research Logical Process Employing the SWOT/TOWS Analysis

8.1. Identification of the SWOT Factors

According to Leigh (2009), the SWOT (strengths, opportunities, weaknesses, and threats) analysis has been widely recognized and proven to be a valuable tool in decision-making. This systematic approach enables a comprehensive evaluation of internal and external factors to formulate effective strategic decisions. By identifying and leveraging strengths, addressing weaknesses, exploiting opportunities, and mitigating threats, the SWOT analysis plays a crucial role across various research fields and practical applications (Phadermrod et al., 2019; Puyt et al., 2023). In geographical research, the SWOT is widely applied to assess the sustainable development potential of territories, particularly in spatial planning, natural resource management, and tourism development (Atasoy, 2020; Gkoltsiou and Mougiakou, 2021).

In the tourism sector, the SWOT analysis is extensively used to guide strategic development, from overarching planning to practical implementation (Tsitsiloni et al., 2013). Specifically, it facilitates policy formulation, development roadmaps, and effective tourism management at different stages of growth (Reihanian et al., 2012; Büyüközkan et al., 2021). Notably, in ecotourism, the SWOT can play a pivotal role in sustainable development

planning by balancing natural resource conservation with responsible tourism exploitation (Swangjang and Kornpiphat, 2021; Heshmati et al., 2022). Applying the SWOT analysis helps identify existing factors, dividing them into: 1) strengths – these are distinctive factors that create a competitive advantage for ecotourism development in a particular region; 2) weaknesses – these are limitations that hinder the sustainable development of ecotourism; 3) opportunities – these are favorable external conditions that can support and enhance the growth of ecotourism; and 4) threats – understood as potential risks that may negatively affect ecotourism development.

Drawing on both quantitative and qualitative analysis results as well as insights from previous studies and relevant literature, the study evaluates and ranks the strengths, opportunities, weaknesses, and threats by their level of importance to determine strategic priorities possible to apply in the development of ecotourism in the BTT region (Table 8.1).

Table 8.1. SWOT Matrix of the Binh-Tri-Thien Region

	Strengths – S(n)	**Weaknesses – W(n)**
Internal factors	S1. Biodiversity, especially the presence of national parks S2. Rich and unique local cultural heritage, especially the customs and traditions of ethnic minorities S3. The role of local communities in providing ecotourism services S4. Diversity of developed ecotourism activities S5. A safe and stable environment for ecotourism development S6. Competitive ecotourism costs	W1. Limited basic tourism infrastructure W2. Insufficient ecotourism marketing and promotion capacity W3. Relatively low level of local communities involvement in ecotourism management and planning W4. Environmental pollution and biodiversity decline in ecotourism W5. Disparities in the quantity and quality of the labor force between destinations
	Opportunities – O(n)	**Threats – T(n)**
External factors	O1. Increasing popularity of sustainable tourism, especially ecotourism O2. Supporting from the Vietnam government and international organizations O3. Advancements and widespread application of information technology in ecotourism	T1. Significant negative impacts from climate change and natural disasters T2. Strong competition from other ecotourism destinations within Vietnam and Southeast Asia T3. Political unrest and economic downturns in Southeast Asia and worldwide T4. Risk of disease outbreaks in high-density tourist areas T5. Cultural degradation and loss of local traditions

8.1.1. Strengths – S(n)

The Binh-Tri-Thien (BTT) region's ecotourism sector is bolstered by several significant strengths that contribute to its sustainable growth and appeal. These include rich biodiversity, highlighted by national parks, as well as a unique cultural heritage shaped by the customs and traditions of ethnic minorities. The active role of local communities in providing ecotourism services enhances the authenticity and sustainability of the experience. Furthermore, the region offers a wide variety of ecotourism activities, a safe and stable environment for development, and competitive pricing, making it an attractive destination for both domestic and international travelers.

S1. Biodiversity, Especially the Presence of National Parks

Kiper (2013) make the assertion that one of the core characteristics of ecotourism is its strong connection to natural areas, where tourists can experience pristine beauty and distinctive biodiversity. These areas often include national parks, nature reserves, and pristine ecosystems, playing a critical role in environmental protection while promoting sustainable tourism. Vietnam, with its rich ecosystems spanning from mountainous regions to coastal areas, is an actual and potential ecotourism destination in Southeast Asia (Bui et al., 2021).

In particular, the BTT region can serve as a prime example due to its high biodiversity, especially the presence of national parks, and nature reserves. The Phong Nha-Ke Bang National Park, recognized as a UNESCO World Heritage site, boasts a unique ecosystem with extensive cave systems, pristine forests, and numerous rare plant and animal species (Ly and Xiao, 2016). The Bach Ma National Park features a typical tropical rainforest ecosystem, ideal for ecotourism activities such as hiking, wildlife observation, and environmental education (An, Hung, and Dung, 2024). Meanwhile, the A Nor Waterfall stands out with its magnificent natural landscape and the presence of the minority ethnic group (Le, 2024). Lastly, the Ngu My Thanh Village harmonizes nature and the culture of the local fishing community, attracting tourists interested in ecotourism combined with indigenous cultural experiences. These locations not only represent the richness of biodiversity but also play central roles in conserving unique ecosystems. These findings are clearly reflected in the high satisfaction levels of tourists regarding the factor 'many beautiful and unique attractions', as presented in Section 7.1.3. Furthermore, this result is reinforced through in-depth interviews with management staff and local residents, as shown in Section 7.2.2.

S2. Rich and Unique Local Cultural Heritage, Especially the Customs and Traditions of Ethnic Minorities

According to Choi (2016), Vietnam is a multi-ethnic country with 54 different ethnic groups, each with distinct cultural identities, enriching the national cultural landscape and creating a unique attraction for tourists. This diversity is reflected in customs, rituals, traditional clothing, language, and folk art, providing vibrant cultural experiences for both domestic and international visitors.

The BTT region – home to numerous ethnic minority communities, is a typical example of rich cultural intersection. For instance, the Bru-Van Kieu and Chut ethnic groups live in the Phong Nha-Ke Bang National Park, and the Pa Ko ethnic group resides around the A Nor Waterfall. Among them, the Arem people live entirely in a village deep within the core area of the Phong Nha-Ke Bang National Park, preserving both tangible and intangible cultural heritage in its original form. The communities not only maintain traditional customs but also actively participate in community-based tourism, providing opportunities for visitors to experience indigenous culture firsthand. Notable experiences include visiting traditional craft villages, participating in unique festivals, learning about textile weaving, pottery making, creating musical instruments, and tasting local cuisine. These activities not only offer opportunities for cultural exchange and learning but also contribute to the preservation of cultural values through interactions between tourists and local communities. Interview results from management staff and local residents (as presented in Section 7.1.4) show that tourists highly appreciate and enjoy participating in local life experiences, especially the distinctive customs of ethnic minorities. Additionally, secondary data analysis (as outlined in Section 4.1.1) highlights cultural heritage as a major strength for the BTT region in the development of ecotourism.

S3. The Role of Local Communities in Providing Ecotourism Services

Kiss (2004) findings indicate the involvement of local communities plays a pivotal role in the development of sustainable ecotourism, especially in areas with rich natural and cultural resources. Globally, community-based ecotourism models have proven effective in improving livelihoods, conserving resources, and preserving cultural identities (Goodwin, 2002). In Vietnam, many localities have adopted this model, with local residents directly providing tourism services such as accommodation, food, local guiding, and cultural experiences. Participation in ecotourism not only boosts income but also facilitates the preservation and promotion of traditional culture (Truong, 2022).

The BTT region, with its distinct biodiversity and cultural diversity, is one of the areas with great potential for developing community-based ecotourism. Survey results presented in Section 6.3.4 indicate that local residents primarily engage in ecotourism through services such as homestays, traditional cuisine, and handicraft sales. In addition to providing stable income, these activities foster social cohesion, instill a sense of pride, and add meaning to people's lives. Specifically, in the Phong Nha-Ke Bang National Park, locals offer guided tours of the cave systems, boat rides on the Son River, and experiences of the traditional lifestyles of the Bru-Van Kieu ethnic group. At the Bach Ma National Park, buffer zone households participate in ecotourism by guiding tourists and supplying organic food. At the A Nor Waterfall, the Pa Ko ethnic community operates tourism services based on local culture, such as homestays, traditional art performances, and handicraft production. In the Ngu My Thanh Village, fishermen organize experiential tourism activities such as traditional fishing, seafood preparation, and participation in the fish worshipping festival. These activities contribute not only to the economic development of the local area but also to raising awareness about conservation and fostering the motivation to sustain traditional cultural values. As outlined in Section 6.3.4, community participation provides economic benefits while allowing individuals to find meaning in their lives, strengthen the bond between humans and nature, and preserve indigenous culture.

S4. Diversity of Developed Ecotourism Activities

The BTT region's variety of organized and developed ecotourism activities is a significant competitive advantage (Phan, 2019). The diversity of ecotourism offerings caters to a wide range of tourist interests, reducing dependency on a single ecotourism type. The distinctive ecotourism products include activities such as hiking, wildlife observation, and plant exploration at the Bach Ma National Park, as well as cave exploration, camping, and trekking at the Phong Nha-Ke Bang National Park. In addition, visitors can engage in cultural activities such as participating in local festivals and learning traditional crafts of the ethnic minorities at the A Nor Waterfall. Furthermore, visiting fishing villages and experiencing the seafood catching profession in the Ngu My Thanh Village offers an attractive option, providing tourists with diverse experiences tailored to their personal interests (An, Hung, Dung, et al., 2024). These findings are further corroborated by field surveys regarding tourists' participation in various ecotourism activities in the BTT region (as presented in Section 7.1.1). The diversity of ecotourism products not only helps expand the market but also extends visitors' length of stay, thereby increasing local income.

S5. A Safe and Stable Environment for Ecotourism Development

In the context of a rapidly changing global environment marked by political conflicts, social instability, and the aftermath of the COVID-19 pandemic, security and stability have become important factors in attracting international tourists (Gössling et al., 2020). London (2014) note that Vietnam is considered one of the most politically stable countries in Southeast Asia, with low crime rates and effective security measures. This has provided a solid foundation for the development of tourism, particularly ecotourism, where travelers often seek safe, nature-friendly, and low-risk experiences.

The BTT region stands out for its political and social safety. This area not only benefits from local government security measures and law enforcement but also from the hospitality tradition of its residents. The coordination between the government, local communities, and tourism organizations in ensuring safety has helped build tourists' confidence when visiting and experiencing this region. For instance, tourist sites like the Phong Nha-Ke Bang National Park are equipped with signage, boats with life jackets, professional rescue teams, and well-managed tourism routes to minimize risks when exploring caves and pristine forests. This observation is supported by the author's fieldwork and in-depth interviews with site managers (as presented in Section 7.2.2). Furthermore, survey results in Section 7.1.3 show high levels of tourist satisfaction with the 'safety' factor at these tourism destinations. From a sustainable development perspective, a safe environment not only attracts tourists but also encourages local communities to actively participate in tourism, fostering a connection between humans and nature, while enhancing awareness of resource protection.

S6. Competitive Ecotourism Costs

Meleddu and Pulina (2016) findings indicated cost is one of the key factors influencing tourists' destination choices, particularly in the ecotourism sector, where travelers often seek high-value experiences within a reasonable budget. With its advantage of low living costs and diverse tourism services, Vietnam has become one of the most cost-competitive destinations in Southeast Asia (WEF, 2024a). This provides tourists, particularly international visitors and those with limited budgets, the opportunity to access unique natural and cultural experiences at affordable prices.

Compared to other ecotourism destinations in Vietnam, the BTT region offers lower-than-average prices for ecotourism services, which are significantly cheaper than those at similar international destinations (Phan, 2019). For example, compared to other ecotourism sites with extensive cave systems, such as Puerto Princesa (Dela Cruz et al., 2021) or

Waitomo (Orams, 2003), entrance fees and tour costs at the Phong Nha-Ke Bang National Park are considerably lower. Similarly, trekking routes and nature experiences at the Bach Ma National Park are more affordable than similar tours in Vietnam's Northwest or nature reserves in Thailand. When compared to other community-based ecotourism destinations in Vietnam (such as the Central Highlands or the northern mountains), costs for services like homestays, local cuisine, and ethnic minority cultural experiences at the A Nor Waterfall are lower, allowing more tourists to engage in these activities without financial barriers. Finally, tours to explore the lagoon and experience fishing life in the Ngu My Thanh Village are more reasonably priced than similar ecotourism sites in coastal areas such as Cat Tien or Phu Quoc (Van et al., 2022; Duong et al., 2024). Moreover, survey results (as presented in Section 7.1.3) indicate that international tourists highly value the service costs at ecotourism sites in the BTT region, especially the entrance fees, transportation, and food costs. This is primarily due to comparisons with prices in their home countries, where similar services are often more expensive. Thus, the competitive cost advantage of the BTT region not only helps attract a diverse range of tourists but also plays a crucial role in sustaining the development of ecotourism, enabling local communities to become more deeply involved in the tourism value chain without imposing significant financial pressure on tourists.

8.1.2. Weaknesses – W(n)

Despite its potential, ecotourism in the Binh-Tri-Thien (BTT) region faces several challenges, including: 1) limited basic tourism infrastructure; 2) insufficient ecotourism marketing and promotion capacity; 3) relatively low level of local communities involvement in ecotourism management and planning; 4) environmental pollution and biodiversity decline in ecotourism; and 5) disparities in the quantity and quality of the labor force.

W1. Limited Basic Tourism Infrastructure

Despite its advantageous location in central Vietnam, bordering Laos and Cambodia, the BTT region faces significant challenges in developing sustainable ecotourism, primarily due to the remote locations of many ecotourism destinations. Areas such as the mountainous regions of the Phong Nha-Ke Bang National Park, A Nor Waterfall, or the lagoon areas like the Ngu My Thanh Village, where infrastructure is underdeveloped, negatively impact long-term tourism development. The shortage of hotels, guesthouses, restaurants, and essential amenities not only reduces tourist satisfaction but also limits the development of tourism products. Furthermore, the region's complex terrain poses a significant obstacle to building and

maintaining tourism infrastructure (Castella et al., 2005). Survey results indicate that tourists generally provide positive feedback regarding parking facilities; however, healthcare services are considered the most significant weakness in the infrastructure system. These findings reflect the reality that, although some infrastructure improvements have been made, they still fail to fully meet tourists' needs, particularly in emergency situations (as presented in Section 7.1.3). Interviews with managers and staff further reveal that, at the Bach Ma National Park, underdeveloped transportation, limited public transport, and insufficient tourist facilities are major challenges in attracting and retaining visitors. Similarly, at the Phong Nha-Ke Bang National Park, although there are some high-end accommodations, there is still a lack of supporting amenities such as recreational areas and healthcare facilities. At the A Nor Waterfall, the access roads remain rudimentary, making it difficult to reach the area, especially during the rainy season. Ngu My Thanh Village also faces a shortage of professional tourism infrastructure, which diminishes the overall visitor experience (as discussed in Section 7.2.2).

W2. Insufficient Ecotourism Marketing and Promotion Capacity

Studies indicate that limited advertising channels, lackluster promotional content, and infrequent promotional events have created a significant gap in showcasing Vietnam's tourism potential (Le, 2020; Bui et al., 2024).

In the BTT region, this marketing and promotional weakness is even more pronounced. Despite its vast potential in natural landscapes and unique cultural assets, tourism destinations here are not effectively promoted. The absence of comprehensive marketing strategies has resulted in the region's ecotourism services failing to build a strong and appealing image among tourists. According to managers at the Bach Ma National Park, A Nor Waterfall, and Ngu My Thanh Village, one of the main reasons for the weak attraction of international tourists is the lack of funding for marketing activities. Financial resources for ecotourism development in the BTT region mainly come from the provincial budget. This financial limitation prevents these destinations from participating in international tourism fairs, widely promoting themselves on social media platforms, or developing multilingual websites – critical tools for reaching and attracting international tourists. The lack of marketing funds has also led these destinations to rely on low-cost advertising methods, such as distributing flyers, posting posters at domestic tourist sites, and word-of-mouth marketing. While these methods may be effective for domestic tourists, they fail to attract or reach international travelers, who

now typically search for information about tourist destinations via online platforms and international travel websites.

W3. Relatively Low Level of Local Communities Involvement in Ecotourism Management and Planning

According to Fennell (2020b), the involvement of local communities in the management and planning of ecotourism development is a critical factor to ensure sustainable and equitable growth in the tourism. In Vietnam, however, the level of community participation in decision-making processes in this sector remains limited. Although policies on ecotourism development highlight the role of local communities, in practice, decision-making authority primarily lies with the government or large tourism organizations, while local people mainly play a passive role in planning and implementing tourism activities (Tran et al., 2021; Van Tuyen et al., 2023; Duong et al., 2024).

In the BTT region, survey and interview results at tourism sites reveal that while local people may contribute ideas for ecotourism activities, they have little control over policy-making processes and the allocation of benefits. The management of tourism activities is primarily in the hands of the national park management board or tourism cooperatives, with the community mainly provided with information about tourism operations without significant involvement in decision-making processes. This reduces the effectiveness of community-based ecotourism models, as the lack of genuine community participation limits the ability to leverage local resources and preserve traditional culture. Moreover, the power imbalance between local communities, local authorities, and tourism development organizations creates significant barriers to the implementation of sustainable ecotourism. When local people are not fully empowered, they are less likely to be engaged in tourism activities and may even develop conflicts with management parties (as presented in Section 7.1.4).

W4. Environmental Pollution and Biodiversity Decline in Ecotourism

Through the analysis and presentation of secondary data in Section 5.1.3, it is evident that while ecotourism in Vietnam is growing rapidly, waste management and environmental protection efforts have not kept pace with the increasing number of tourists. In many destinations, plastic waste, household waste, and wastewater from tourism facilities are still not properly managed, leading to environmental pollution and diminishing the quality of natural resources. The exploitation of resources for tourism, such as the construction of unsustainable infrastructure, also undermines the integrity of ecosystems. In addition,

biodiversity loss is occurring due to over-exploitation of forest resources, wildlife hunting, and deep interventions in the natural habitats of plant and animal species.

In the BTT region, these issues are particularly concerning as most ecotourism destinations are located within or near important nature reserves. Direct observations and survey results presented in Section 7.1.3 show that problems such as waste pollution, water contamination, and ecosystem degradation are directly affecting both the quality of tourists' experiences and the livelihoods of local people. For example, at the Phong Nha-Ke Bang National Park, many people in the buffer zone still rely on forest resource extraction, including illegal hunting and logging. This not only threatens biodiversity but also undermines the tourism value of the area. Environmental pollution is also reported at other destinations in the region. At the A Nor Waterfall, the growing number of visitors without an effective waste and wastewater management system has led to water pollution, impacting both the ecosystem and the surrounding community. Meanwhile, in the Ngu My Thanh Village, unsustainable seafood harvesting and waste from tourism activities have caused the degradation of the coastal ecosystem.

W5. Disparities in the Quantity and Quality of the Labor Between Destinations

The survey results presented in Section 7.1.3 indicate a disparity in both the quantity and quality of the labor force across different tourism sites in the BTT region. Specifically, the Phong Nha-Ke Bang National Park, which has experienced rapid tourism growth in recent years, stands out with a large and well-trained team of tour guides. This not only helps the destination maintain high service quality but also builds a professional image in the eyes of tourists. In contrast, areas such as the Bach Ma National Park, A Nor Waterfall, and Ngu My Thanh Village lack a workforce with specialized training in ecotourism and environmental protection. The labor force in these areas mainly comes from non-tourism sectors, which significantly impacts service quality and reduces attractiveness, particularly to international tourists. One key factor contributing to this disparity is the absence of practical training programs on ecotourism and environmental protection for local communities. This creates a significant barrier to the sustainable development of ecotourism and limits the community's participation in tourism activities. The local community's limited knowledge of ecosystems and lack of skills in serving tourists makes it difficult for them to engage in developing and promoting tourism products, ultimately affecting the sustainability of the ecotourism in the BTT region. Another factor identified through in-depth interviews with management staff is the language barrier, which is a major weakness of the labor force, especially in

communication with international tourists. The language gap sometimes leads to misunderstandings and affects service quality, which further complicates the challenge of attracting international visitors to tourism sites in BTT region (as presented in Section 7.1.4).

8.1.3. Opportunities – O(n)

In addition to the previously mentioned strengths and weaknesses, there are significant opportunities for the Binh-Tri-Thien (BTT) region to enhance its ecotourism potential, including: 1) increasing popularity of sustainable tourism, especially ecotourism; 2) supporting from the Vietnam government and international organizations; and 3) advancements and widespread application of information technology in ecotourism. These opportunities can play a crucial role in improving the existing weaknesses and driving the sustainable growth of ecotourism in the region.

O1. Increasing Popularity of Sustainable Tourism, Especially Ecotourism

In the current context, with the impacts of climate change and growing awareness of environmental issues, sustainable tourism is becoming a global trend (Day and Noakes, 2021; Weaver, 2001a). Dowling (2000) also pointed that market research on international tourism shows significant growth in the ecotourism sector, with more and more tourists willing to pay extra for environmentally friendly products and services. In Vietnam, ecotourism and sustainable tourism are receiving strong emphasis and development (Linh and Walter, 2014; Duong et al., 2024). Areas with diverse ecosystems, such as national parks, nature reserves, and unique cultural regions, are increasingly attracting both domestic and international visitors (as presented in Section 3.2.1).

In the BTT region, which boasts diverse natural and cultural resources, ecotourism is rapidly growing (as shown in Section 4.1.1). Tourism sites in the region, such as the Phong Nha-Ke Bang National Park, Bach Ma National Park, A Nor Waterfall, and Ngu My Thanh Village, have great potential to attract visitors seeking sustainable tourism experiences (as presented in Section 6.2). Interviews with management staff at these sites reveal a shift in tourist preferences from traditional tourism activities to nature-based experiences that connect with cultural preservation and environmental protection (as outlined in Section 7.2.2). This indicates a transformation in tourists' demands, particularly as more people seek meaningful trips, not only in terms of experience but also in contributing to conservation and sustainable development efforts. These changes present a significant opportunity for the BTT region to

develop ecotourism, not only boosting the economy but also helping to preserve the region's natural and cultural values.

O2. Supporting from the Vietnam Government and International Organizations

In recent years, ecotourism has become an important sector in Vietnam, contributing not only to the national economy but also to the preservation and enhancement of natural values (Thuy et al., 2020). The collected secondary data showed that the Vietnam government has recognized this potential and implemented a range of supportive policies, including tax reductions, credit assistance, land allocation, land clearance, and the development of tourism infrastructure in key areas (as presented in Subchapter 5.1). These policies have facilitated investment, both domestic and international, and encouraged their participation in developing ecotourism projects. In addition, international organizations play a significant role in promoting the development of ecotourism in Vietnam, particularly through funding and international cooperation (Nguyen et al., 2016).

The results of qualitative analysis with management staff and local community representatives show that in the BTT region, although tourism sites such as the Bach Ma National Park, A Nor Waterfall, and Ngu My Thanh Village face challenges in attracting international tourists due to limited local budget funding, the support from the government and international organizations has been instrumental in advancing ecotourism. Incentive policies, as well as support in terms of credit and land, have created a favorable environment for the implementation of ecotourism projects in these areas. Furthermore, international organizations have contributed to providing grants for large-scale ecotourism projects, particularly in regions such as the Phong Nha-Ke Bang National Park (as dicussed in Section 7.2.2 and 7.2.3). In addition, the support from these organizations has played a key role in training and enhancing management capacity at tourism sites in the BTT region. Programs focused on human resource training, technology transfer, and the development of sustainable tourism marketing strategies have helped local areas improve their competitiveness and attract more visitors.

O3. Advancements and Widespread Application of Information Technology in Ecotourism

Eddyono et al. (2021) showed that the rapid development of information technology in recent years has brought significant changes to the ecotourism globally, including in Vietnam. Information technology has improved connectivity and increased operational efficiency within the tourism sector, particularly in ecotourism. The adoption of online marketing tools has allowed ecotourism destinations to reach a large number of international customers while

also personalizing services, providing unique experiences for each tourist (Kozłowska-Adamczak et al., 2023).

In the BTT region, information technology is increasingly playing a key role in enhancing the efficiency of ecotourism operations. Through interviews with management staff (as presented in Section 7.2.2), prominent tourism sites such as the Phong Nha-Ke Bang National Park and Bach Ma National Park have implemented systems for monitoring visitor numbers at entry points, allowing for precise and effective management of tourist data. Each visitor is recorded upon entry, enabling real-time tracking of tourist activity. In addition, these tourism sites have adopted online ticketing systems, making it easier for tourists to make reservations in advance and collect revenue data. This system not only allows managers to track tourist numbers but also provides valuable information to forecast future visitor trends, helping to optimize management efforts. Moreover, conducting regular surveys to gather information on visitor needs, origins, and satisfaction levels plays a vital role in improving service quality and developing sustainable tourism strategies for the region. Finally, technology plays a critical role in monitoring and managing tourism resources effectively, thus supporting the sustainable development of the ecotourism sector.

8.1.4. Threats – T(n)

Ecotourism in the Binh-Tri-Thien (BTT) region faces important threats, including: 1) significant negative impacts from climate change and natural disasters; 2) strong competition from other ecotourism destinations within Vietnam and Southeast Asia; 3) political unrest and economic downturns in the Southeast Asia and worldwide; 4) risk of disease outbreaks in high-density tourist areas; and 5) cultural degradation and loss of local traditions

T1. Significant Negative Impacts from Climate Change and Natural Disasters

Climate change and natural disasters have become serious threats to the sustainable development of the ecotourism sector in Vietnam. Rising sea levels, coupled with an increase in extreme weather events such as storms, floods, droughts, and heatwaves, not only damage infrastructure but also degrade the quality of the ecological environment. Critical ecosystems, such as coral reefs and coastal areas, are being devastated, leading to biodiversity loss and a reduced appeal of ecotourism destinations. These findings are supported by analyses based on secondary data presented in Sections 3.2.2 and 4.1.2.

In the BTT region, the impacts of climate change and natural disasters are even more pronounced, particularly for coastal tourist sites such as the Ngu My Thanh Village.

According to interview results, the management board of the village has identified natural disasters, especially flooding, as one of the major obstacles to the potential development of ecotourism in the area. Every rainy season, the village frequently faces severe flooding, causing significant damage to tourism infrastructure, including roads, bridges, and public utilities. Tourism sites such as community centers, rest stops, and public restrooms are submerged and deteriorating, leading to increased maintenance costs and directly affecting the tourist experience. In particular, international tourists from areas less affected by natural disasters often express dissatisfaction when visiting due to poor infrastructure conditions. Furthermore, many households at the A Nor Waterfall have invested in guesthouses to accommodate tourists, but they face challenges in maintaining stable operations due to the frequent occurrence of natural disasters. Large storms not only damage physical infrastructure but also negatively impact the ecosystem and natural landscapes. The loss of protective forests and soil erosion have diminished the aesthetic value of the area, affecting the pristine beauty of the village, which is a key attraction for tourists (as shown in Section 7.2.2).

T2. Strong Competition from Other Destinations within Vietnam and Southeast Asia

As discussed regarding external factors affecting tourism in Vietnam (Section 3.2.2), the rapid growth of ecotourism in Southeast Asia has intensified competition among destinations (Blanton et al., 2024). This fierce competition poses significant challenges to the development of ecotourism also in the Central Vietnam. Many Southeast Asian destinations offer similar ecotourism experiences, such as pristine beaches, lush rainforests, and diverse wildlife in Thailand and Indonesia (Tseng et al., 2019; Hatma Indra Jaya et al., 2024).

The aforementioned factors make it difficult for the BTT region to differentiate itself and attract unique visitors. In addition, some destinations (Phong Nha-Ke Bang National Park and Bach Ma National Park) have invested heavily in marketing campaigns and brand-building efforts, creating a strong global presence and attracting large numbers of tourists (Masud et al., 2017). Increased competition may lead to a decline in both visitor numbers and ecotourism revenue for the BTT region.

T3. Political Unrest and Economic Downturns in Southeast Asia and Worldwide

The Asia-Pacific region has emerged as a focal point for political and economic competition among major powers due to the global shift of influence toward the East (Ronaldo et al., 2020). In Southeast Asia, political diversity and unresolved disputes, particularly the South China Sea conflict, have created potential risks of regional conflicts (SarDesai, 2018). The South China Sea serves as a hotspot for tensions between Southeast Asian nations and China,

with Vietnam playing a direct role in disputes over the Paracel Islands, which have been under China's control since 1974. These political instabilities could negatively impact the development of ecotourism in Vietnam, including its central provinces, which rely heavily on regional stability and security. Escalating tensions erode visitor confidence, particularly among international tourists, potentially reducing tourist arrivals and subsequently affecting revenue and investment opportunities in ecotourism (Tomczewska-Popowycz and Quirini-Popławski, 2021). In addition, the global economic downturn, inflation, and political instability have reduced investment flow s into ecotourism at various destinations. These findings have been presented in the analysis of external factors impacting tourism in Vietnam in general and the BTT region in particular (as presented in Section 3.2.2).

T4. Risk of Disease Outbreaks in High-Density Tourist Areas

According to Agrusa and Prideaux (2002), tourism destinations in Vietnam characterized by high population density and tourist influx, face an increased risk of disease outbreaks. As outlined in Section 4.1.2, tourism sites in the BTT region often struggle with environmental sanitation, waste management, and maintaining public health safety conditions (Sen et al., 2022). Factors such as climate change, hot and humid weather conditions, and the movement of international tourists further increase the risk of spreading infectious diseases like the COVID-19, dengue fever, malaria, and gastrointestinal diseases.

For example, at the Phong Nha-Ke Bang National Park, the large number of domestic and international visitors to the caves significantly increases the risk of infection in confined spaces. The Bach Ma National Park, with its dense tropical forest ecosystem, provides a favorable environment for the development of malaria and dengue-carrying mosquitoes. The A Nor Waterfall and Ngu My Thanh Village, due to limited healthcare infrastructure and poor sanitation, are highly susceptible to disease outbreaks. Such outbreaks not only affect the health of tourists but also negatively impact the image of the BTT region as a tourist destination. When an area is labeled as high-risk for disease outbreaks, tourists tend to avoid visiting, leading to a decline in visitor numbers and tourism revenue. For the local communities in the BTT region, disease outbreaks increase healthcare costs, reduce income, and cause socio-economic instability, particularly for those dependent on ecotourism.

T5. Cultural Degradation and Loss of Local Traditions

The degradation of local culture and traditions among indigenous communities at ecotourism sites in Vietnam has become an increasing concern (Lipscombe and Thwaites, 2003a). As the

tourism sector grows, changes in living conditions and traditional production activities of ethnic minority communities have deeply affected their cultural values.

In the BTT region, survey results show that cultural degradation and the loss of traditional customs are becoming more pronounced at tourist sites. As discussed in Sections 7.2.2 and 7.2.3, since the Phong Nha-Ke Bang National Park was recognized as a UNESCO World Heritage site, ethnic groups in the area have faced significant changes in their way of life. The cessation of forest exploitation and the protection of biodiversity in this region have severely impacted the traditional sources of income for local people, making their lives more difficult. This has accelerated the degradation of cultural values, especially as the villages of ethnic minorities are now built with bricks, concrete, and closely packed together, leaving no space for traditional farming or gardening. This form of settlement not only erases the cultural space connected to nature but also leads to the erosion of the local traditions and customs. The ethnic minorities in the A Nor Waterfall no longer engage in traditional activities such as slash-and-burn farming, hunting, and rituals tied to the forest and land, which were the foundation of their cultural life, due to environmental protection regulations and sustainable tourism development efforts. These restrictions have led to a decline in traditional cultural values and a loss of ethnic identity. Many local people feel that tourism has not brought benefits to them, and they feel excluded from activities that are integral to their cultural heritage. In addition, interviewees at the Ngu My Thanh Village expressed discomfort with the behavioral and dress differences exhibited by tourists, particularly international visitors. The revealing clothing and disrespectful behavior have made the local community feel invaded and negatively influenced the younger generation, leading them to gradually alter their views on cultural values.

8.1.5. Weights of the SWOT Sub-Factors

After identifying the relevant strengths, weaknesses, opportunities and threats (also called factors), evaluating and assigning weights to these factors in the SWOT/TOWS analysis is a crucial step (Skotnicka-Zasadzień et al., 2023) in determining the extent to which each factor influences the development of ecotourism in the Binh-Tri-Thien (BTT) region. This process is based on a synthesis of previous studies on internal factors (strengths and weaknesses) and external factors (opportunities and threats) related to ecotourism development in the BTT region, particularly within the context of community-based ecotourism and natural resource conservation. More importantly, information obtained from field surveys, interviews with tourism managers, and local communities provides additional empirical data to assess the

significance of each factor in alignment with the actual conditions in the BTT region. The evaluation criteria include:

1) The degree of influence on ecotourism development (direct or indirect). A factor is considered to have a direct influence if it has an immediate and clear impact on ecotourism development, such as tourism infrastructure, managerial capacity, and support from local authorities. In contrast, factors with indirect influence may not have an immediate effect but play a significant role in long-term development, such as education and raising public awareness about nature conservation.
2) The level of urgency in management and utilization (immediate or long-term impact). A factor is considered urgent if it requires immediate management and utilization to prevent short-term negative consequences, such as pollution control and biodiversity protection. Long-term impact factors are typically associated with sustainable development strategies, such as human resource training and the development of new tourism products.

Based on these criteria, the assignment of weights to the SWOT factors follows a systematic process that includes identification, evaluation, and ranking, as discussed in previous sections. This approach ensures that each factor receives appropriate prioritization according to its relative significance in the ecotourism development context of the BTT region.

For strengths and opportunities, higher weights go to factors that provide significant competitive advantages and growth potential. For example, S1 (0.25) holds the highest weight among strengths due to its critical role in enhancing ecotourism development. Similarly, O1 (0.40) carries the highest weight among opportunities as it represents the most promising avenue for sustainable tourism expansion. In contrast, weaknesses and threats receive weights based on their potential negative impact on ecotourism. For example, W1 (0.30) ranks highest among weaknesses because inadequate infrastructure significantly hinders tourism growth. Likewise, T1 (0.30) holds the highest weight among threats due to the severe consequences of climate change and natural disasters on ecotourism sustainability (Table 8.2).

Table 8.2. Weights of the SWOT Sub-Factors

Factors	Weight	Factors	Weight
S(n)	**1**	**O(n)**	**1**
S1	0.25		
S2	0.20	O1	0.40
S3	0.15	O2	0.35
S4	0.15	O3	0.25
S5	0.15		
S6	0.10		
W(n)	**1**	**T(n)**	**1**
W1	0.30	T1	0.30
W2	0.20	T2	0.25
W3	0.20	T3	0.20
W4	0.15	T4	0.15
W5	0.15	T5	0.10

Beyond systematic evaluation, the weight assignments also incorporate the author's direct research, field observations, and expert consultations. This ensures that the prioritization of SWOT factors aligns with real-world conditions in the BTT region, making the strategic analysis more reliable and contextually relevant. Specifically, each factor receives an appropriate weight, with the total weight of each factor group (strengths, weaknesses, opportunities, threats) summing to 1.

8.2. Identification and Prioritization of Strategies

The subchapter presents the process of identifying development strategies based on the SWOT/TOWS analysis and evaluating their prioritization according to relevant criteria.

8.2.1. Strategies Identification

After identifying the factors, the next step is to construct a strategic matrix based on the bidirectional interactions between internal and external factors. The SWOT analysis only identifies these factors without deeply analyzing the interactions between them, which may result in suboptimal strategy development (Skotnicka-Zasadzień et al., 2023). In contrast, the TOWS analysis emphasizes the bidirectional impact between internal and external factors. Rather than solely focusing on leveraging strengths or mitigating weaknesses, the TOWS aids in assessing the effects of opportunities and threats on local internal resources, thereby guiding the formulation of strategies that are more aligned with practical realities (Asadpourian et al., 2020). Consequently, the TOWS analysis not only helps managers or local authorities to capitalize on advantages but also enables them to proactively adapt to external environmental influences (Roy, 2021). This is particularly beneficial in the field of tourism and ecotourism, where external factors such as policies, travel trends, climate change,

and social impacts significantly influence the sector's development. Therefore, this study combines both the SWOT and TOWS analysis to ensure a comprehensive approach, thereby proposing suitable strategies and determining appropriate priorities in developing ecotourism in the Binh-Tri-Thien (BTT) area.

According to Skotnicka-Zasadzień (2023), the SWOT/TOWS matrix does not merely transform data into a table by swapping columns with rows and reordering them. Instead, factors from different quadrants of the SWOT analysis are placed as column headings (starting from the second column) and in the first column of the table (Table 8.3).

Table 8.3. Structure of the SWOT/TOWS Matrix

	Opportunities	Threats
Strengths	**Aggressive strategy**	**Conservative strategy**
Weaknesses	**Competitive strategy**	**Defensive strategy**

Source: author's work based on Skotnicka-Zasadzień et al., 2023

At their intersections, corresponding strategic actions are formulated based on these factors. Based on each section of the matrix, the study identifies four strategic groups:

1) Aggressive Strategy (S–O): The strategy maximizes the existing strengths of the region to capitalize on opportunities for ecotourism development.
2) Conservative Strategy (S–T): The strategy focuses on mitigating threats by leveraging the available strengths.
3) Competitive Strategy (W–O): The strategy aims to overcome weaknesses to take advantage of development opportunities.
4) Defensive Strategy (W–T): The strategy concentrates on minimizing the negative impacts of threats and weaknesses..

The application of the SWOT/TOWS matrix enables the systematic organization of internal and external factors, facilitating the development of ecotourism strategies tailored to the actual conditions of the BTT region. By leveraging these strategic groups, the region can optimize its existing potential, mitigate weaknesses, and capitalize on opportunities for sustainable development.

8.2.2. Evaluation of Strategies Prioritization

Following the guidelines of Kowalik and Klimecka-Tatar (2017), after identifying the factors and constructing the strategic matrix, the next step is to assess the priority levels of strategies through a systematic analysis of the interactions between internal (strengths and weaknesses)

and external (opportunities and threats) factors. Two main impact dimensions need to be considered (Kowalik and Klimecka-Tatar, 2017):

1) Internal-to-external impact (SWOT factors): From an internal-to-external perspective, proactive strategies utilize strengths to exploit opportunities and mitigate threats while addressing weaknesses to enhance the ability to seize opportunities and reduce threats. The prioritization of strategies is analyzed through the following questions: 1) the ability to leverage strengths to capitalize on opportunities; 2) the ability to utilize strengths to mitigate threats; 3) the extent to which weaknesses limit opportunities; and 4) the extent to which weaknesses amplify threats.
2) External-to-internal impact (TOWS factors): Unlike SWOT, the TOWS approach focuses on how external factors influence internal capacity. This emphasizes the adaptability to environmental changes. The significant questions in this approach include: 5) the extent to which threats exacerbate weaknesses; 6) the extent to which threats undermine strengths; 7) the extent to which opportunities help reduce weaknesses; 8) the extent to which opportunities enhance strengths.

The relationships between these factors are determined by assigning values of 1 (indicating a relationship) or 0 (indicating no specific relationship). For instance, if a strength can be leveraged to capitalize on an opportunity, a value of 1 is assigned; otherwise, it remains 0. The total number of 1s in each row is then calculated to determine No. I (Interaction Score). Subsequently, the strategic priority P is computed using the formula: P = No. I × W, where W represents the assigned weight for each factor. For example, if a strength (S1) has No. I = 2 and a weight W = 0.25, then P = 2 × 0.25 = 0.5. Based on P-values, strategies are ranked in descending order of priority (R) to determine the most critical strategies for implementation. Finally, the overall external interaction assessment is conducted based on the ‘sum of interaction’ and the ‘sum of P-values’.

The Ability to Leverage Strengths to Capitalize on Opportunities

The results indicate that the rich and unique local cultural heritage (S2) holds the highest priority value, signifying its significant potential in leveraging opportunities for ecotourism development. Biodiversity (S1) is also highly important, underscoring the crucial role of national parks and community-based ecotourism in sustainable tourism development. While the role of local communities (S3), the diversity of ecotourism activities (S4), and the safe and stable environment (S5) have equal priority scores, suggesting a moderate contribution. The competitive ecotourism cost (S6) has the lowest priority score, indicating its limited role in

seizing opportunities. The total number of interactions between strengths and opportunities is 13, reflecting the strong interconnections between internal and external factors (Table 8.4).

Table 8.4. The Ability to Leverage Strengths to Capitalize on Opportunities

S-O	O1	O2	O3	W (Sn)	No. I	P	R
S1	1	1	0	0.25	2	0.50	1
S2	1	1	1	0.20	3	0.60	2
S3	0	1	1	0.15	2	0.30	4
S4	1	0	1	0.15	2	0.30	4
S5	1	1	0	0.15	2	0.30	4
S6	0	1	1	0.10	2	0.20	6
Sum of interactions	-	-	-	-	**13**	-	-
Sum of P-values	-	-	-	-	-	**2.2**	-

The Ability to Utilize Strengths to Mitigate Threats

The evaluation of the ability to mitigate threats using strengths indicates that biodiversity (S1) has the highest P-value, demonstrating its critical role in reducing threats to ecotourism development in the Binh-Tri-Thien (BTT) region. This suggests that leveraging S1 will yield optimal effectiveness in risk management. Meanwhile, the role of local communities (S3), the diversity of ecotourism activities (S4), and the safe and stable environment (S5) exhibit similar P-values, highlighting their essential supporting roles in threat mitigation. The rich and unique local cultural heritage (S2) has a lower P-value, while the competitive ecotourism cost (S6) has the lowest, indicating their relatively limited impact in reducing threats (Table 8.5).

Table 8.5. The Ability to Utilize Strengths to Mitigate Threats

S-T	T1	T2	T3	T4	T5	W(Sn)	No. I	P	R
S1	1	1	0	1	0	0.25	3	0.75	1
S2	0	1	0	0	1	0.20	2	0.40	4
S3	0	1	1	0	1	0.15	3	0.45	3
S4	1	1	1	0	0	0.15	3	0.45	3
S5	1	1	0	1	0	0.15	3	0.45	3
S6	0	1	1	0	0	0.10	2	0.20	5
Sum of interactions	-	-	-	-	-	-	**16**	-	-
Sum of P-values	-	-	-	-	-	-	-	**2.70**	-

The Extent to Which Weaknesses Limit Opportunities

The assessment of how weaknesses constrain opportunities reveals that limited tourism infrastructure (W1) and limited marketing capacity (W2) have the highest priority values. Notably, the limited marketing capacity (W2) interacts with all three opportunities (O1-O3), making it the most pervasive constraint. The limited community participation (W3) has a

moderate priority score with two interactions, while the environmental protection challenges (W4) and limited workforce quality (W5) have the lowest priority scores, indicating they are less restrictive in comparison. The total interaction count is 11, highlighting the significant impact of weaknesses on limiting opportunities in ecotourism development. Addressing the W1 and W2 should be a top priority to maximize potential opportunities (Table 8.6).

Table 8.6. The Extent to Which Weaknesses Limit Opportunities

W-O	O1	O2	O3	W (Wn)	No. I	P	R
W1	1	1	0	0.30	2	0.60	1
W2	1	1	1	0.20	3	0.60	1
W3	0	1	1	0.20	2	0.40	3
W4	1	0	1	0.15	2	0.30	4
W5	1	1	0	0.15	2	0.30	4
Sum of interactions	**-**	**-**	**-**	**-**	**11**	**-**	**-**
Sum of P-values	**-**	**-**	**-**	**-**	**-**	**2.2**	**-**

The Extent to Which Weaknesses Amplify Threats

The analysis shows that limited tourism infrastructure (W1) is the most significant weakness in amplifying threats, particularly climate change and natural disasters (T1), competition from other destinations (T2), and the risk of pandemics (T4). This implies that poor infrastructure weakens the ability to respond to environmental challenges and competitive pressures. Additionally, limited marketing capacity (W2) and limited community participation (W3) intensify the impact of strong competition (T2), economic instability (T3), and local cultural degradation (T5). This suggests that inadequate promotional strategies and community engagement hinder the destination's ability to attract visitors in an increasingly competitive landscape. In contrast, the environmental protection challenges (W4) and limited workforce quality (W5) have the lowest priority scores and fewer interactions, indicating a relatively smaller impact on threats. With a total interaction count of 13, the findings highlight that addressing the W1, W2, and W3 is crucial for mitigating threats and ensuring sustainable ecotourism development (Table 8.7).

Table 8.7. The Extent to Which Weaknesses Amplify Threats

W-T	T1	T2	T3	T4	T5	W (Wn)	No. I	P	R
W1	1	1	0	1	0	0.30	3	0.90	1
W2	0	1	1	0	1	0.20	3	0.60	3
W3	0	1	1	0	1	0.20	3	0.60	3
W4	1	0	0	1	0	0.15	2	0.30	5
W5	0	1	1	0	0	0.15	2	0.30	5
Sum of interactions	-	-	-	-	-	-	**13**	-	-
Sum of P-values	-	-	-	-	-	-	-	**2.70**	-

The Extent to Which Threats Exacerbate Weaknesses

The results indicate that climate change and natural disasters (T1) pose the most significant threat, affecting all weaknesses. This implies that natural disasters not only damage infrastructure but also weaken marketing capacity, community participation, and labor quality. Furthermore, competitive pressure (T2) is a key factor that undermines ecotourism destinations, particularly in terms of infrastructure, marketing, and workforce quality. Economic instability (T3) primarily impacts W1, W2, and W5, indicating that during economic downturns, investments in infrastructure, tourism promotion, and workforce development are significantly affected. Additionally, cultural degradation (T5) influences W2, W3, W4, and W5, reflecting the loss of local traditions, which in turn weakens the quality of tourism services (Table 8.8).

Table 8.8. The Extent to Which Threats Exacerbate Weaknesses

T-W	W1	W2	W3	W4	W5	W (Tn)	No. I	P	R
T1	1	1	1	1	1	0.30	5	1.50	4
T2	1	1	1	0	1	0.25	4	1.00	3
T3	1	1	0	0	1	0.20	3	0.60	2
T4	1	0	1	1	0	0.15	3	0.45	2
T5	0	1	1	1	1	0.1	4	0.40	3
Sum of interactions	-	-	-	-	-	-	**20**	-	-
Sum of P-values	-	-	-	-	-	-	-	**4.45**	-

The Extent to Which Threats Undermine Strengths

The results show that the negative effects of climate change and natural disasters (T1) represent the most significant threat, affecting all strengths (S1-S6). This highlights the potential for environmental disasters to destroy natural landscapes, disrupt visitor experiences, and diminish the competitiveness of ecotourism. Competitive pressure (T2) significantly impacts biodiversity (S1), local culture (S2), community participation (S3), competitive pricing (S6), and a safe environment (S5). This suggests that the destination must enhance its

competitive capacity and leverage unique advantages to maintain its market position. Economic instability (T3) primarily affect S1, S2, S3, S4, and S6, demonstrating that economic instability can weaken infrastructure, community engagement, and the ability to sustain tourism services (Table 8.9).

Table 8.9. The Extent to Which Threats Undermine Strengths

T-S	S1	S2	S3	S4	S5	S6	W (Tn)	No. I	P	R
T1	1	1	1	1	1	1	0.3	6	1.80	1
T2	1	1	1	0	1	1	0.25	5	1.25	2
T3	1	1	1	1	0	1	0.20	5	1.00	3
T4	0	1	1	1	1	1	0.15	5	0.75	4
T5	1	1	0	1	0	1	0.10	4	0.40	5
Sum of interactions	-	-	-	-	-	-	-	**25**	-	-
Sum of P-values	-	-	-	-	-	-	-	-	**5.2**	-

The Extent to Which Opportunities Help Reduce Weaknesses

The evaluation indicates that the growing popularity of sustainable tourism (O1) is the most significant opportunity for improving infrastructure (W1), marketing capacity (W2), community participation (W3), environmental conservation (W4), and workforce quality (W5). This suggests that sustainable tourism development serves as a key driver for enhancing ecotourism holistically. Government and international organization support (O2) primarily contributes to improving W1, W2, W3, and W5, indicating that external policies and funding play a crucial role in enhancing infrastructure, tourism promotion, and workforce development. Additionally, the advancement of information technology in tourism (O3) helps improve W1, W2, W3, and W4, reflecting the critical role of technology in enhancing service quality, destination promotion, and sustainable management (Table 8.10).

Table 8.10. The Extent to Which Opportunities Help Reduce Weaknesses

O-W	W1	W2	W3	W4	W5	W (On)	No. I	P	R
O1	1	1	1	1	1	0.40	5	2.0	3
O2	1	1	1	0	1	0.35	4	1.4	4
O3	1	1	1	1	0	0.25	4	1.0	2
Sum of interactions	-	-	-	-	-	-	**13**	-	-
Sum of P-values	-	-	-	-	-	-	-	**5.2**	-

The Extent to Which Opportunities Enhance Strengths

The analysis of the impact of opportunities on strengths in ecotourism development demonstrates that the growing popularity of sustainable tourism (O1) is the most significant opportunity for strengthening all strengths (S1-S6). This reflects that sustainable tourism not only supports biodiversity and cultural conservation but also enhances competitiveness, fosters a safe environment, and promotes local community development. Meanwhile, government and international organization support (O2) primarily benefits S1, S2, S3, S5, and S6, highlighting the critical role of policies and financial support in conserving natural resources, developing community-based tourism, and improving ecotourism competitiveness. Additionally, the advancement of information technology in tourism (O3) influences S1, S2, S3, S4, and S6, emphasizing that technology enhances promotional capacity, sustainable management, and modernized visitor experiences (Table 8.11).

Table 8.11. The Extent to Which Opportunities Enhance Strengths

O-S	S1	S2	S3	S4	S5	S6	W (On)	No. I	P	R
O1	1	1	1	1	1	1	0.40	6	2.4	1
O2	1	1	1	0	1	1	0.35	5	1.75	2
O3	1	1	1	1	0	1	0.25	5	1.25	3
Sum of interaction	-	-	-	-	-	-	-	**16**	-	-
Sum of P-value	-	-	-	-	-	-	-	-	**5.4**	-

Strategies Prioritization

Based on presented data, Table 8.12 contains the aggregate results of the SWOT/TOWS analysis with the sums of interaction and products for all connected factors.

Table 8.12. Results of SWOT/TOWS Analysis

Strategies	SWOT factors		TOWS factors		SWOT/TOWS factors	
	Interaction	P-value	Interaction	P-value	Sum of interaction	Sum of P-value
Aggressive strategy	13	2.2	16	5.4	29	7.6
Conservative strategy	16	2.7	25	5.2	41	7.9
Competitive strategy	11	2.2	13	5.2	24	7.4
Defensive strategy	13	2.7	20	4.45	33	7.15

The analysis results indicate that the ‘conservative strategy’ has the highest number of interactions and the highest weight, suggesting that leveraging strengths to safeguard against threats is the top priority. The ‘aggressive strategy’ ranks highly in priority, with a high interaction weight but a lower number of interactions, indicating the need for additional measures to effectively capitalize on opportunities. The ‘competitive strategy’ holds a

moderate priority level, implying that addressing weaknesses to seize opportunities remains necessary but is not the primary focus. The ‘defensive strategy’ has the lowest priority, suggesting that mitigating risks associated with weaknesses is important but not as critical as other strategic approaches (Table 8.13).

Table 8.13. Results of the Priority of Strategies

	Opportunities	Threats
Strengths	**Aggressive strategy**	**Conservative strategy**
	Number of interaction: 29	The number of interaction: 41
	Interaction weight: 7.6	Interaction weight: 7.9
Weaknesses	**Competitive strategy**	**Defensive strategy**
	The number of interaction: 24	The number of interaction: 33
	Interaction weight: 7.4	Interaction weight: 7.15

8.3. Formulation and Analysis of Specific Strategies

The formulation of ecotourism development strategies is systematically conducted by analyzing the interrelationships between internal factors (strengths, weaknesses) and external factors (opportunities, threats). Based on the results of the SWOT/TOWS analysis, specific strategies are identified and prioritized to ensure the highest feasibility and effectiveness (Table 8.14). Additionally, these strategies are refined to eliminate redundancy, optimize resource utilization, and align with the overarching goal of sustainable ecotourism development in the BTT region.

Table 8.14. SWOT/TOWS Matrix

	O(n)	**T(n)**
S(n)	**Aggressive strategy – Priority 2** SO1 (S3 + O1, O2) SO2 (S4, S5 + O3) SO3 (S6 + O1)	**Conservative strategy – Priority 1** ST1 (S1, S4 + T1, T4) ST2 (S1, S2 + T2) ST3 (S5 + T3) ST4 (S2 + T5)
W(n)	**Competitive strategy – Priority 3** WO1 (W1 + O2) WO2 (W2 + O1, O3) WO3 (W3 + O1, O2) WO4 (W5 + O2, O3)	**Defensive strategy – Priority 4** WT1 (W1 + T1) WT2 (W4 + T4) WT3 (W3 + T3) WT4 (W5 + T5)

8.3.1. Conservative Strategy – ST(n)

With the highest number of interactions and weight, the conservative strategy is the top priority for maintaining the stability and sustainability of ecotourism in the Binh-Tri-Thien (BTT) region, particularly in response to threats such as climate change, natural disasters, pandemics, competition from other destinations, and economic downturns. Specifically, the Conservative Strategy is formulated based on the interplay between strengths and threats, including:

ST1. Responding to Climate Change and Natural Disasters through Conservation, Adaptation, and Enhanced Tourism Safety

According to Stronza et al. (2019), ensuring the sustainability of ecotourism requires effective conservation and adaptation measures. The BTT region is a significant ecotourism destination with a diverse ecosystem. However, it is also highly vulnerable to natural disasters such as storms, floods, landslides, and disease outbreaks. The following measures and solutions are proposed:

1) Developing an early warning system and disaster response plan. As suggested by Gössling et al. (2012), an early warning system and disaster response plan can mitigate damages and ensure the safety of both tourists and local communities. For example, installing weather monitoring stations at key tourism sites such as the Phong Nha-Ke Bang National Park and Bach Ma National Park to track weather patterns and detect early warning signs of natural disasters, particularly storms.
2) Enhancing emergency communication systems and establishing information centers in tourism areas to guide visitors on safety measures. Providing disaster response training for tourism staff and local communities in destinations such as the A Nor Waterfall and Ngu My Thanh Village. Building climate-resilient tourism infrastructure. In the Phong Nha-Ke Bang and Bach Ma National Parks, constructing safe evacuation pathways to facilitate quick movement in emergencies. Additionally, designing accommodations with high resistance to storms and landslides, particularly in areas with complex terrain.
3) Enhancing medical capacity and tourism safety, such as developing medical support systems in tourism areas, including first-aid stations and emergency healthcare services. Raising awareness of disease prevention among tourists and local communities, especially post-COVID-19, by providing information on preventive measures and response strategies in case of an outbreak.

ST2. Developing Unique Ecotourism Products Linked to Biodiversity Conservation and Cultural Heritage for International Competitiveness

According to Richins (2009), sustainable utilization of natural resources combined with cultural experiences enhances destination value and attracts responsible tourists. The development of unique ecotourism products must align with the conservation of natural ecosystems and local cultural heritage. Specific proposed solutions should be include:

1) Establishing signature ecotourism routes based on natural advantages. In the Phong Nha-Ke Bang National Park, maintaining and expanding cave exploration tours combined with learning about the distinctive karst ecosystem. In the Bach Ma National Park, developing trekking routes through primary forests, waterfalls, and streams while incorporating wildlife observation activities. At the A Nor Waterfall, prioritizing tourism activities such as waterfall bathing, outdoor excursions, and agro-ecological experiences like traditional medicinal herb collection and native tree planting. In the Ngu My Thanh Village, creating ecotourism routes focused on lagoon experiences, traditional fishing techniques, and insights into local fishermen's cultural life.
2) Alongside natural elements, integrating cultural aspects into tourism also plays an important role. In the Ngu My Thanh Village, organizing traditional cooking classes where tourists can learn to prepare local delicacies using natural ingredients. Similarly, at the A Nor Waterfall, offering hands-on experiences in traditional textile weaving and bamboo musical instrument crafting by the Co Tu ethnic community. Additionally, in the Phong Nha-Ke Bang and Bach Ma National Parks, incorporating folklore storytelling and traditional musical performances by the Bru-Van Kieu ethnic group to help tourists gain deeper insights into local heritage.

ST3. Ensuring Safety and Adaptability to Regional Economic-Political Instability While Leveraging Stability to Attract Tourists

According to Lepp and Gibson (2008) and Mawby and Ozascilar (2024), tourists tend to choose destinations that are safe, possess stable tourism infrastructure, and have clear support policies. Amidst global economic and political fluctuations, the BTT region must implement stability-focused strategies to attract tourists, particularly to ecotourism destinations such as the Phong Nha-Ke Bang National Park, Bach Ma National Park, A Nor Waterfall, and Ngu My Thanh Village. Therefore, some important solutions should be implemented:

1) Establishing tourism packages tailored to various customer segments, especially supporting budget travelers during economic downturns. For example, in the Ngu My

Thanh Village, launching affordable mangrove forest experience tours has successfully attracted both domestic and international visitors. This approach can be extended to other tourism sites.

2) Enhancing tourism security and visitor support: Setting up safety checkpoints in areas with complex terrain, such as caves in the Phong Nha-Ke Bang National Park, trekking routes in the Bach Ma National Park, and the base of the A Nor Waterfall. Additionally, implementing a tourist support hotline enhances the sense of safety and trust for visitors choosing the BTT region as a destination (Soliman et al., 2024). Supporting local tourism businesses in adapting to economic fluctuations, ensuring their continued operation and service quality. In areas like the Phong Nha-Ke Bang and Bach Ma, financial support programs can assist small businesses in workforce training, upgrading eco-lodging services, and investing in sustainable tourism models (Zou and Yu, 2022).

ST4. Preserving and Promoting Indigenous Cultural Values To Prevent Cultural Degradation Amid Ecotourism Development

According to Damnjanović (2021), overtourism can alter the lifestyles of indigenous communities and impact social cohesion. The rapid growth of ecotourism in the BTT region, particularly in the Phong Nha-Ke Bang National Park, Bach Ma National Park, A Nor Waterfall, and Ngu My Thanh Village, generates significant economic benefits but also risks eroding traditional cultural values. To protect and enhance local culture during ecotourism development, the following measures should be implemented:

1) Encouraging local community participation in tourism activities, from guiding tours and handicraft production to running homestays. In the Ngu My Thanh Village and A Nor Waterfall, experiential tourism models – such as engaging in fishing life on the lagoon and immersing in indigenous daily activities – have proven effective in creating sustainable livelihoods for residents. This approach not only ensures direct community benefits from tourism but also helps preserve and promote traditional cultural values. This solution can be extended to other destinations like the Phong Nha-Ke Bang and Bach Ma National Parks.
2) Preserving indigenous culture by maintaining and organizing activities such as the Co Tu handicraft workshops at the A Nor Waterfall, Ca Tru or Ho Khoan Le Thuy performances in the Phong Nha-Ke Bang, allowing tourists to appreciate and understand local heritage. Integrating cultural elements into tourism products not only enriches visitor experiences but also contributes to the conservation of traditional values

(Esfehani and Albrecht, 2018). Furthermore, establishing regulations to mitigate tourism's negative impact on historical sites and traditional villages. For instance, in the Bach Ma, controlling visitor numbers and protecting sacred areas can help maintain the authenticity of indigenous cultural values. Additionally, organizing awareness campaigns and educational workshops to ensure local communities recognize the long-term benefits of cultural heritage conservation (Stronza et al., 2019).

8.3.2. Aggressive Strategy – SO(n)

With 29 interactions and a weight of 7.6, the aggressive strategy plays a crucial role in promoting the sustainable development of ecotourism in the Binh-Tri-Thien (BTT) region. Specifically, the strategy is formulated based on the interaction between strengths and opportunities, including:

SO1. Supporting the Local Community in Deeper Participation in the Ecotourism Value Chain for Sustainable Development

The participation of local communities plays a key role in the sustainable development of ecotourism (Masud et al., 2017; Duong et al., 2024). Research by Scheyvens (2000) indicates that empowering local people – from tour guides, accommodation services, and culinary experiences to handicraft production – enhances income and encourages resource conservation. The BTT region could implement the following proposed solutions:

1) Providing training courses on local tour guiding, tourism service skills, and homestay management. This equips local people with the necessary skills and knowledge to engage more deeply in the tourism and increase their income. For example, in the Ngu My Thanh Village, training courses on developing traditional handicraft tourism products, such as conical hat making, embroidery, and traditional seafood processing, would enable locals to integrate further into the tourism value chain. This solution aligns with the study of Moscardo (2008a), which highlights that training and capacity building for communities are key factors in sustainable tourism development.
2) Facilitating financial access: Providing loan support for households to develop tourism services. This enables locals to secure capital for entrepreneurship and tourism service expansion, thereby increasing income and improving livelihoods. This approach is based on the research of Lara-Morales and Clarke (2024), which asserts that financial access is a crucial factor in deeper community involvement in the tourism value chain.

3) Establishing linkages with tourism enterprises: Developing a tourism service supply chain between tour operators and local communities to ensure fair economic benefits. These linkages not only provide locals with market access but also foster sustainable collaboration among stakeholders. According to Ngo et al (2018), partnerships with tourism enterprises enhance competitiveness and sustainable development for community-based tourism initiatives.

SO2. Applying Technology to Promote Tourism, Enhance Visitor Experiences, and Optimize Tourism Operations

The application of technology in ecotourism is an inevitable trend to enhance visitor experiences and optimize management operations (Osipchuk et al., 2023; Shvetsova, 2023). The BTT region can leverage digital platforms to promote destinations through smart tourism applications, digital maps, virtual reality (VR), and augmented reality (AR) to showcase ecosystems, culture, and travel routes. Research by Pencarelli (2020) suggests that digital technology in tourism not only improves accessibility for international visitors but also supports conservation efforts by reducing direct environmental impacts. Additionally, the use of artificial intelligence (AI) and big data in visitor management can help control tourism carrying capacity, mitigate overcrowding, and minimize negative impacts on natural landscapes. Proposed directions in the the BTT region include:

1) Developing smart tourism applications to facilitate visitor access to information and enhance the travel experience (Baggio et al., 2020). The application of this measure is diverse and adaptable to the conditions of each tourism site. Specifically, in the Phong Nha-Ke Bang and Bach Ma National Parks, smart tourism applications can provide information on travel routes, digital maps, safety alerts, and weather conditions, helping visitors plan detailed exploration itineraries for cave systems and primeval forests. Similarly, in the Ngu My Thanh Village, the application can introduce traditional handicraft products, enable online ordering, and provide insights into local culture before a visit.
2) Creating interactive experiences that allow visitors to explore natural landscapes and culture remotely, thereby attracting a broader audience. Research by Fatma and Bhatt (2024) indicates that VR and AR applications in tourism can generate novel and engaging experiences for visitors, particularly in interpretation and visitor education at tourist centers. For example, in the Phong Nha-Ke Bang, VR and AR can enable visitors to experience adventure routes and cave exploration in advance without physically

traveling, thereby reducing visitor congestion and protecting fragile ecosystems. Likewise, in the Bach Ma, AR technology can offer interactive experiences with the tropical rainforest ecosystem, allowing visitors to observe rare flora and fauna in their natural habitat without disrupting the ecosystem.

3) Utilizing artificial intelligence (AI) and big data to help tourism managers better understand visitor needs and behaviors, thereby improving service quality (Valeri, 2023). Specifically, AI can analyze visitor data to recommend optimal itineraries, avoiding overcrowding at popular caves and thus protecting natural landscapes in the Phong Nha-Ke Bang and Bach Ma National Parks. Similarly, AI can analyze market demand and assist households in adjusting handicraft products to match customer preferences, contributing to increased income and the preservation of cultural values in community-based tourism destinations such as the Ngu My Thanh Village and A Nor Waterfall.

SO3. Developing Cost-Effective Ecotourism in Line with Sustainable Tourism Trends to Attract Diverse Visitors

One of the challenges of ecotourism in the BTT region is maintaining its authenticity while offering reasonable costs to appeal to various tourist segments. As sustainable tourism gains popularity, developing environmentally friendly products that remain accessible to a diverse range of visitors is essential. The proposed solutions should be include:

1) Expanding low-cost ecotourism models, such as developing eco-camping sites in primary forests and along rivers in the Phong Nha-Ke Bang and Bach Ma National Parks, combined with activities like jungle trekking and kayaking, allowing tourists to enjoy nature at an affordable cost. Additionally, promoting self-guided tourism with eco-friendly transportation methods such as cycling and hiking can help reduce costs and enhance nature-connected experiences in the Ngu My Thanh Village and the A Nor Waterfall. This proposal aligns with the study of Włodarczyk and Cudny (2022), which indicates that low-cost tourism not only attracts a wider range of tourists but also contributes to environmental protection and supports local communities.
2) Implementing flexible pricing policies, including time-based entrance fees, special discounts for students, seasonal promotional programs, and reduced prices for eco-tour groups or families with children to stimulate green tourism. Such policies can make ecotourism more accessible to a broader audience. This solution aligns with the study of

Laarman and Gregersen (1996) found that flexible pricing strategies play a crucial role in promoting sustainable tourism.

8.3.3. Competitive Strategy – WO(n)

The competitive strategy, which addresses weaknesses to seize opportunities, has 24 interactions and an interaction weight of 7.4. Although this strategy is important, its relatively lower priority suggests that addressing weaknesses to exploit opportunities may not be as pressing as the two aforementioned strategies. Specifically, the strategy is developed based on the interaction between weaknesses and opportunities, including:

WO1. Improving Ecotourism Infrastructure by Utilizing Government and International Organizational Support

One of the major weaknesses of ecotourism in the BTT region is the limited infrastructure, especially in remote areas such as the A Nor Waterfall or Phong Nha-Ke Bang National Park. To improve the limitation, the destinations should mobilize investment capital from the government and international organizations. Utilizing state-supported tourism infrastructure programs and funding from UNESCO, the Asian Development Bank (ADB), and the United Nations Development Programme (UNDP) can significantly contribute to infrastructure development. These fundings have been implemented in Phong Nha-Ke Bang National Park, facilitating investment in essential infrastructure, including roads, lodging systems, and ecotourism services. However, funding from the government and international organizations remains limited for other destinations. In addition, leveraging support policies will help in developing smart navigation systems, digital tourism maps, and tourist information stations at key destinations.

WO2. Enhancing Ecotourism Promotion and Marketing Through Digital Technology to Expand the Market and Strengthen Brand Recognition

Ecotourism promotion in the BTT region remains underdeveloped and has not fully utilized digital platforms. In the context of digital transformation, strengthening digital marketing efforts can expand the market and attract international tourists. Some proposed solutions could include:

1) Developing a digital communication strategy for ecotourism development. According to Zada et al. (2025), utilizing digital media platforms not only enhances accessibility but also allows tourists to interact directly with destinations, increasing their interest and encouraging visits. Social media platforms such as YouTube, Facebook, and TikTok

can serve as powerful tools to promote ecotourism in areas like the Phong Nha-Ke Bang National Park and Bach Ma National Park. Creating promotional videos showcasing natural landscapes, ecotourism activities, and conservation programs can effectively reach international tourists.

2) Establishing a smart tourism information portal: At destinations such as the A Nor Waterfall and Ngu My Thanh Village, developing a multilingual tourism website with integrated booking functions and virtual tourism experiences (VR/AR) will allow visitors to explore destinations before making travel decisions. Online platforms will provide information about attractions, ecological activities, and accommodation services, facilitating convenient and well-planned trips.
3) Collaborating with key opinion leaders and international travel bloggers: The BBC's coverage of Son Doong Cave (located in Phong Nha-Ke Bang National Park) created a significant boost in international tourism to Vietnam. Therefore, collaborating with KOLs and influential travel bloggers can enhance the brand recognition of the BTT's ecotourism. Inviting renowned content creators to experience and share their impressions of the Phong Nha-Ke Bang National Park, Bach Ma National Park, or A Nor Waterfall will generate widespread media coverage and attract interest from the global travel community.

WO3. Promoting Community Participation in Ecotourism Activities to Ensure Economic Benefits and Sustainable Development

Community-based ecotourism models have proven effective in many destinations (Pasanchay and Schott, 2021; Kunjuraman et al., 2022). To enhance the role of communities in ecotourism activities, the following proposed solutions could be implemented:

1) Supporting local residents in providing accommodation services, local tour guiding, and producing culturally distinctive souvenirs. Through this approach, communities would take greater responsibility in preserving natural and cultural values, contributing to the sustainable development of ecotourism in destinations such as the Bach Ma National Park, A Nor Waterfall and Ngu My Thanh Village.
2) Organizing training programs on ecotourism management, environmental protection, and visitor etiquette for local residents: Training programs conducted in the Phong Nha-Ke Bang National Park and Bach Ma National Park could equip local communities with essential knowledge about ecotourism management, environmental conservation, and proper visitor interaction.

3) Providing financial support for small-scale tourism businesses: Offering preferential loans to households engaged in ecotourism businesses could facilitate the development of sustainable tourism activities in locations such as the A Nor Waterfall and Ngu My Thanh Village. These loans can be used to upgrade tourism infrastructure, improve service quality, and develop unique tourism products.

8.3.4. Defensive Strategy – WT(n)

The defensive strategy, which aims to mitigate threats by addressing weaknesses, has 33 interactions and the lowest interaction weight (7.15). This reflects the need to safeguard against threats, but it is less critical compared to other strategies. Specifically, the strategy is formulated based on the interactions between weaknesses and threats, including:

WT1. Improving Tourism Infrastructure to Enhance Resilience Against Natural Disasters and Climate Change

According to Trang et al. (2019), ecotourism destinations need climate-adaptive infrastructure to mitigate the adverse effects of natural disasters. The Binh-Tri-Thien (BTT) region is frequently affected by storms, landslides, and climate change, which damage tourism infrastructure and pose safety risks to visitors. To address this issue, the prosposed measures should be implemented:

1) Upgrading transportation and infrastructure at tourist destinations. According to Becken and Hughey (2013) emphasized that improving transportation networks and facilities is key to minimizing disaster risks and ensuring visitor safety. In the Phong Nha-Ke Bang National Park, it is essential to enhance access roads to caves, reinforce suspension bridges, and upgrade boat docks to ensure visitor safety during flood seasons. In the Bach Ma National Park, installing landslide warning signs and effective drainage systems can mitigate flash flood risks. Similarly, in the A Nor Waterfall, constructing erosion-resistant trekking trails, installing protective railings, and establishing emergency shelters can support tourists during heavy rainfall. In the Ngu My Thanh Village, upgrading dikes and boat docks for lagoon-based ecotourism can enhance visitor safety under unpredictable weather conditions.
2) Using environmentally friendly construction materials that are adaptable to climate change. This proposal aligns with the study of Metwally (2019), which highlighted that sustainable tourism infrastructure not only protects the environment but also creates safe and attractive spaces for visitors. Specifically, eco-friendly materials such as bamboo,

recycled wood, and green roofing systems should be used for riverside accommodations to mitigate heat effects in locations like the Phong Nha-Ke Bang National Park, Bach Ma National Park, and A Nor Waterfall. Additionally, developing elevated eco-homestays suited to the lagoon terrain can help minimize damage from rising sea levels.

WT2. Controlling Environmental Pollution and Biodiversity Loss through Conservation Policies and Green Technologies

According to Wardle et al. (2021), the application of green technology and conservation policies can help mitigate these negative impacts. The increasing number of tourists is exerting significant pressure on the natural environment in the BTT region, particularly in terms of plastic waste, water pollution, and biodiversity loss. Without timely control measures, this area risks losing its ecological resource advantages. Some proposed solutions should be include:

1) Implementing a zero-waste tourism policy. Research by Dileep (2007) demonstrated that zero-waste tourism policies can protect the ecological environment and reduce pollution. Ecotourism destinations such as the Phong Nha-Ke Bang National Park can introduce regulations restricting single-use plastics and requiring visitors to bring reusable bags and water bottles. In particular, installing waste recycling systems at tourist sites like the A Nor Waterfall will contribute to reducing plastic waste and protecting the natural environment.
2) Applying smart wastewater and waste treatment technologies. Obaideen et al. (2022) highlights that adopting green technologies in wastewater and waste treatment not only protects the environment but also enhances the quality of tourism services. This solution can be implemented in eco-lodging areas such as the Ngu My Thanh Village and Bach Ma National Park. Installing biological water filtration systems and composting organic waste will help minimize direct waste discharge into the environment.

WT3. Strengthening Local Community Management and Supervision Capacity to Adapt to Economic-Political Instability

According to Scheyvens and van der Watt (2021), empowering communities not only promotes economic growth but also strengthens the resilience of ecotourism in times of uncertainty. To ensure sustainable development, a flexible management system and strong local community participation in ecotourism project oversight are essential. Some proposed solutions should be include:

1) Developing a sustainable ecotourism management model: The effectiveness of cooperative models at the A Nor Waterfall and Ngu My Thanh Village suggests that these approaches could be expanded to other tourism sites in the BTT region. For example, at the Phong Nha-Ke Bang and Bach Ma National Parks, establishing community tourism management councils could be highly effective in supervising and coordinating tourism activities. These councils should include representatives from local authorities, businesses, and the local community to ensure full stakeholder participation. Through direct involvement in management activities, local communities can improve their ability to adapt to unforeseen political and economic changes (Stone and Stone, 2022; Zoysa, 2022).
2) Strengthening partnerships with businesses and international organizations: Stone (2015) suggests that international cooperation enhances local community management and oversight capabilities. In areas such as the A Nor Waterfall and Ngu My Thanh Village, partnerships with NGOs and responsible businesses play a crucial role in building local tourism management capacity.

WT4. Developing Tourism Human Resources to Preserve Indigenous Culture and Reduce Labor Disparities Between Destinations

The BTT region still faces a shortage of highly skilled tourism professionals, particularly in the fields of ecotourism guiding, sustainable tourism management, and tourism support services. Therefore, some proposed solutions should be prioritized:

1) Providing specialized training for tour guides and tourism staff. Compared to the Phong Nha-Ke Bang and Bach Ma National Parks, the A Nor Waterfall and Ngu My Thanh Village have a more limited workforce in terms of both quantity and quality. Establishing intensive training programs covering nature conservation, local culture, first aid skills, and sustainable tourism management will help improve tourism service quality. Additionally, partnerships with local universities and colleges to develop ecotourism and tourism management curricula are essential.
2) Supporting local employment: Tosun (2000) argues that creating job opportunities for local communities increases community participation and fosters local economic growth. Encouraging tourism enterprises in prominent destinations like Phong Nha-Ke Bang and Bach Ma National Parks to hire local workers will help reduce labor migration and ensure balanced development across the region. In addition, at tourism sites such as the Ngu My Thanh Village and A Nor Waterfall, training local residents as

cultural guides will help preserve and promote indigenous cultural values. Organizing experiential tourism programs featuring folk arts, traditional crafts, and local cuisine will create unique and attractive experiences for visitors while maintaining long-term cultural heritage.

Strategies Summary

The above contents highlight the strategic priorities for ecotourism development based on a detailed analysis of the interaction between strengths, weaknesses, opportunities, and threats. The findings indicate a clear preference for strategies that focus on leveraging existing strengths to either capitalize on opportunities or mitigate threats; including:

1) The 'conservative strategy', with its higher number of interactions and slightly greater interaction weight, emphasizes the importance of safeguarding current advantages in the face of external threats. This strategy's dominance suggests that a robust defense against risks, such as environmental degradation, competitive pressure, or economic instability, is crucial for maintaining the region's ecotourism competitiveness. By fortifying strengths like biodiversity, local culture, and community involvement, the strategy ensures that the destination can continue to offer unique and attractive experiences despite challenges.
2) The 'aggressive strategy' also plays a significant role, reflecting the need to take proactive steps in seizing new opportunities in the growing ecotourism market. Its relatively high interaction weight underscores the importance of capitalizing on strengths such as natural resources, cultural heritage, and community participation to enhance ecotourism offerings. However, its slightly lower priority compared to the conservative strategy suggests that focusing on mitigating threats should be a more immediate concern, with the aggressive pursuit of new opportunities as a secondary but still essential objective.
3) The 'competitive strategy', while having a moderate number of interactions and a solid interaction weight, is slightly less prioritized. This indicates that addressing weaknesses to exploit opportunities is important, but not as urgent as leveraging strengths. Efforts in this area might include improving infrastructure, enhancing local skills, or better marketing, but these should follow after ensuring that the region's existing strengths are sufficiently protected and optimized.
4) The 'defensive strategy' is identified as the least critical, despite its substantial interaction with weaknesses and threats. Its lower interaction weight suggests that while

it remains necessary to reduce vulnerabilities by addressing weaknesses, it should not overshadow more proactive strategies that seek to capitalize on opportunities or mitigate larger, more immediate threats.

Taken together, the results emphasize a strategic approach that prioritizes resilience and sustainability in the face of external challenges. The combination of 'conservative' and 'aggressive' strategies offers a balanced approach, ensuring that the region can both defend its current position and expand its market potential. However, attention should also be given to addressing weaknesses and improving competitive positioning in the longer term, with a focus on continuously adapting to changing environmental, economic, and market conditions. It is important to note that the proposed strategies in this study are developed by the author based on the specific context of the BTT region. Therefore, they are not yet comprehensive or definitive. These strategies should be complemented and refined by integrating relevant solutions and strategic approaches from other studies and practical experiences.

8.3.5. Sustainable Ecotourism Development Pathways

Proposing development pathways aims to address the third research question (RQ3) of this dissertation. Throughout the research process, various strategies and solutions have been analyzed to optimize strengths and opportunities as well as mitigate weaknesses and threats in the region's ecotourism sector. However, not all strategies and solutions can be applied uniformly due to the unique characteristics and specific conditions of each analyzed area. Therefore, the development pathways proposed in this section are not merely a list of actions, but rather represent coherent, strategic directions that logically integrate and organize previously discussed strategies into overarching, actionable frameworks tailored to the realities of the Bình-Tri-Thien (BTT) region. Specifically, four significant pathways for sustainable ecotourism development in the BTT region include:

Pathway 1. Sustainable Ecotourism Development Linked to Resource Conservation

Sustainable ecotourism development aims to balance economic benefits with environmental protection and cultural preservation (Stronza et al., 2019; Fennell, 2020a). Studies suggest that ecotourism, when properly managed that could serve as a tool for conservation while enhancing local livelihoods (Marlina et al., 2020). Proposed suggestions for addressing the pathway include:

1) To restore and protect ecosystems while minimizing tourism-related impacts, several targeted initiatives should be implemented. Native reforestation projects would focus on

restoring degraded landscapes by engaging tourists and local communities in tree-planting programs. In the Phong Nha-Ke Bang, efforts would concentrate on revegetating high-traffic areas near caves, while the Bach Ma National Park would prioritize replanting along hiking trails. Meanwhile, the A Nor Waterfall will introduce buffer zones to minimize human disturbance to amphibians and reptiles, and the Ngu My Thanh Village would integrate mangrove reforestation to strengthen wetland ecosystems against climate change. To further support biodiversity, wildlife corridors would be established to facilitate species movement and reduce habitat fragmentation. Additionally, endangered species protection programs would be launched to safeguard vulnerable wildlife. By integrating these initiatives, local communities, tourists, and conservationists could collaborate to ensure that ecotourism development in the region remains ecologically sustainable while enhancing biodiversity conservation.

2) Implementation of green technologies. The adoption of green technologies is critical to mitigating the environmental impact of tourism activities (Conefrey et al., 2024; Peeters and Papp, 2024). Some solutions should focus on: (i) Establishing electric shuttle buses and bicycle rental stations at major ecotourism sites, particularly in the Phong Nha-Ke Bang and Bach Ma National Parks, where motorized transport contributes to pollution and habitat disturbance; (ii) Deploying waste segregation and composting initiatives in the Ngu My Thanh Village and A Nor Waterfall, where visitor numbers have increased, leading to waste accumulation; (iii) Promoting the use of solar and wind energy for lighting and tourist accommodations in the Phong Nha-Ke Bang, Bach Ma, and Ngu My Thanh Village, reducing reliance on non-renewable energy sources and minimizing carbon footprints; (iv) Conducting regular evaluations at the Phong Nha-Ke Bang and Bach Ma National Parks to limit the number of tourists in ecologically sensitive areas, preventing habitat degradation.

Pathway 2. Digital Transformation and Artificial Intelligence Integration in Ecotourism

Digital transformation plays a pivotal role in improving the management and promotion of ecotourism (Osipchuk et al., 2023; Shvetsova, 2023). In the context of ecotourism, technology-driven solutions such as smart tourism platforms, artificial intelligence (AI), and big data analytics play a crucial role in improving management, marketing, and visitor experiences (Almeida et al., 2019). Proposed suggestions for addressing the pathway include:

1) Development of smart tourism platforms. Digital platforms could integrate various tourism-related services, including destination information, accommodation, tour

booking, and visitor support (Almeida et al., 2019). Implementing these systems in the BTT region could significantly enhance the tourist experience: (i) A centralized digital platform should provide real-time updates on hiking trails, biodiversity conservation areas, and weather conditions at the Phong Nha-Ke Bang and Bach Ma National Parks. This could include interactive maps and guided virtual tours, allowing tourists to plan their visits efficiently; (ii) Developing mobile applications at the A Nor Waterfall and Ngu My Thanh Village that offer cultural insights, audio guides, and digital storytelling features can enrich visitor engagement with local heritage and traditions.

2) Integration of Virtual Reality (VR) and 3D MappingVR technology altogether with 3D mapping could create immersive experiences, allowing tourists to explore destinations before arrival (Fatma and Bhatt, 2024). Specific proposal applications in the BTT region include: (i) A VR experience showcasing the Son Doong Cave system (Phong Nha-Ke Bang National Park) and other unique geological formations which could attract global audiences and generate interest in responsible tourism; (ii) A 3D interactive map detailing hiking routes, flora and fauna species, and local legends that could enhance visitor education and safety (in the Bach Ma Natioanal Park, A Nor Waterfall, Ngu My Thanh Village).
3) Application of Artificial Intelligence and Big Data AnalyticsAI-driven insights could optimize tourism strategies by analyzing visitor behavior and forecasting trends (Samara et al., 2020). In the BTT region, specific proposals can include: (i) An AI-powered chatbot (in the Phong Nha-Ke Bang and Bach Ma National Parks) that could provide customized itinerary suggestions based on tourist preferences and real-time site conditions; (ii) Digital contracts for eco-lodges (in the Ngu My Thanh Village and A Nor Waterfall) that could guarantee fair revenue distribution to local communities while preventing fraud.

Pathway 3. Diversification of Ecotourism Products Integrated with Indigenous Culture

Integrating ecotourism with indigenous cultural experiences is a crucial strategy for enhancing tourism attractiveness while simultaneously preserving and revitalizing traditional heritage (Kiper, 2013; Stronza et al., 2019). A well-structured approach involves establishing cultural ecotourism villages that showcase and safeguard the distinctive architecture, customs, and traditions of ethnic groups such as the Ta Oi, Van Kieu, and Pa Co. Proposed suggestions for addressing the pathway include:

1) A key initiative is the establishment of cultural tourism villages that integrate eco-friendly practices with indigenous traditions. In the Phong Nha-Ke Bang National Park, a designated cultural village could serve as a living museum, where ethnic communities demonstrate their traditional housing styles, agricultural techniques, and culinary heritage. Visitors could engage in activities such as weaving, wood carving, and herbal medicine preparation, guided by local artisans. Similarly, in the A Nor Waterfall, a Ta Oi cultural village could be developed, emphasizing their unique stilt houses, textile weaving traditions, and traditional musical performances. This initiative not only provides tourists with an authentic experience but also generates direct economic benefits for local communities, thereby reinforcing the sustainability of the model. In the Ngu My Thanh Village, known for its rich cultural heritage and close-knit fishing community, presents an opportunity for developing an ecotourism model that integrates river-based activities with cultural immersion. Tourists could participate in net fishing, boat-making workshops, and folk storytelling sessions, creating a multi-dimensional experience that highlights the harmonious relationship between humans and nature in this region.
2) Expansion of community-based ecotourism models. In the BTT region, successful community-based ecotourism initiatives at the A Nor Waterfall and Ngu My Thanh Village highlight the role of local communities in both service provision and environmental stewardship. Expanding similar initiatives to other locations, such as the buffer zones of the Phong Nha-Ke Bang and Bach Ma National Parks, would encourage local participation in sustainable tourism while ensuring direct benefits for host communities. In addition, proposal to apply the 'living like a local' model. In these programs, tourists could stay with local families, partake in traditional farming activities, and contribute to daily household tasks, gaining a firsthand understanding of rural life. In A Nor, this could include rice cultivation, bamboo weaving, and participating in community feasts. Meanwhile, in Phong Nha-Ke Bang, visitors could engage in forest conservation activities alongside local guides, gaining insights into sustainable resource management practices employed by indigenous groups.
3) Cultural festivals serve as powerful tools for promoting indigenous traditions to both domestic and international visitors. Events such as the Aza Koonh Festival (a Ta Oi ritual celebrating ancestral spirits and agricultural prosperity) and the New Rice Festival (marking the beginning of a new harvesting cycle) should be systematically integrated into the regional tourism calendar. These festivals could include traditional dance

performances, ceremonial rituals, craft exhibitions, and culinary showcases, attracting culturally curious tourists while reinforcing the pride and identity of local ethnic groups.

Pathway 4. Regional Linkages and International Cooperation for Market Expansion

Regional integration and international cooperation play a pivotal role in the sustainable development of ecotourism by expanding market access, optimizing resource utilization, and strengthening destination competitiveness (Hawkins, 2004; Butcher, 2007). Some proposals for addressing the pathway include:

1) Development of a strategic interregional ecotourism cluster. To enhance ecotourism competitiveness in the BTT region, an interregional ecotourism cluster should be established, linking the BTT with neighboring provinces such as Quang Nam, Da Nang, and Ha Tinh. This cluster would create an integrated tourism circuit connecting diverse landscapes, from the pristine forests of Phong Nha-Ke Bang National Park to the coastal attractions of Lang Co Bay and the historical and cultural heritage sites of Hue and Hoi An, located in neighboring regions.
2) Cross-border tourism along the East-West Economic Corridor, linking Vietnam, Laos, and Thailand. This presents an opportunity to expand the international market for ecotourism in the BTT region. By incorporating ecotourism sites such as Phong Nha-Ke Bang, A Nor Waterfall, and Bach Ma National Park into cross-border tour routes, the region could attract tourists traveling along this economic corridor. Recommended initiatives include: (i) advocating for simplified visa procedures and joint travel passes for tourists visiting multiple EWEC destinations; (ii) collaborating with travel agencies in Laos and Thailand to promote multi-country ecotourism packages featuring the biodiversity and cultural uniqueness of central Vietnam.
3) Strengthening International Cooperation for Ecotourism Development. Establishing partnerships with international organizations such as UNESCO, UN Tourism, and the Global Environment Facility (GEF) would provide essential expertise, funding opportunities, and best-practice frameworks for sustainable ecotourism management.

Pathways Summary

Drawing on the suite of strategies identified earlier, the four development pathways synthesize and organize these measures into coherent, goal-oriented directions for the BTT region. Each pathway clusters related strategies – whether community engagement and conservation, capacity building and livelihood diversification, digital innovation, or cultural heritage product design – into an integrated framework. By aligning specific interventions with these broader pathways, the region can capitalize on its natural and cultural assets, strengthen local participation, and overcome infrastructure, skills, and marketing gaps to achieve sustainable ecotourism growth.

A sustainable ecotourism model that harmonizes resource conservation with economic benefits, supported by digital tools and cultural tourism experiences, will enhance the region's attractiveness while ensuring direct and equitable advantages for local communities (Fennell, 2020a; Stronza et al., 2019). Furthermore, expanding regional and international collaborations will be crucial in positioning BTT as a competitive ecotourism destination. By linking with neighboring provinces and tapping into cross-border tourism networks, the region could attract a broader spectrum of visitors while promoting responsible and community-oriented tourism practices.

The successful implementation of these pathways depends on coordinated efforts among government agencies, businesses, local communities, and international organizations (Marlina et al., 2020). Strong policy frameworks, financial investments, and capacity-building initiatives will be essential in overcoming challenges such as environmental degradation, inadequate infrastructure, and market competition. With the right pathways in place, the BTT region has the potential to emerge as a leading hub for sustainable ecotourism in Vietnam, offering unique, immersive experiences that balance conservation with cultural and economic development.

Summary of Chapter 8

The chapter provides a structured assessment of ecotourism development strategies in the Binh-Tri-Thien (BTT) region through a comprehensive SWOT/TOWS analysis. By systematically evaluating the internal strengths and weaknesses alongside external opportunities and threats, the study determines key strategic directions that leverage the region's ecotourism potential while addressing existing challenges.

The proposed strategies, derived from the TOWS matrix, emphasize a balance between economic growth, environmental conservation, and cultural preservation. Aggressive strategies focus on supporting deeper local community participation in the ecotourism value chain, applying technology to enhance visitor experiences and optimize operations, and developing cost-effective ecotourism aligned with sustainable tourism trends. Conservative strategies aim to respond to climate change and natural disasters through conservation, adaptation, and enhanced safety measures; develop unique ecotourism products linked to biodiversity and cultural heritage to boost international competitiveness; ensure tourism resilience amid regional economic-political instability; and preserve indigenous cultural values to prevent cultural degradation.

Competitive strategies address current limitations by improving ecotourism infrastructure with governmental and international support, leveraging digital technologies for marketing and branding, and promoting community participation to ensure equitable and sustainable benefits. Meanwhile, defensive strategies include strengthening infrastructure resilience to climate threats, controlling environmental pollution and biodiversity loss through conservation policies and green technologies, enhancing community management capacity in response to economic-political risks, and developing local tourism human resources to preserve culture and address labor gaps.

Additionally, the identification of four main strategic pathways (as discussed in Section 8.3.5) provides practical approaches for implementation. These include: 1) sustainable ecotourism development linked to resource conservation; 2) digital transformation and AI integration in ecotourism; 3) diversification of ecotourism products rooted in local culture; and 4) regional connectivity and international cooperation to expand the ecotourism market. These pathways ensure that ecotourism development in the BTT region aligns with broader sustainable development goals while remaining contextually grounded and actionable.

Chapter 9. Final Conclusions, Limitations and Directions for Future Research

Building upon the findings presented in the previous parts of dissertation, Chapter 9 synthesizes the significant results of the study. The chapter also discusses the study's limitations and proposes directions for future research to further improve the understanding and practical implementation of sustainable ecotourism development in the Binh-Tri-Thien (BTT) region. Specifically, Chapter 9 is divided into 3 parts, including:

1) Subchapter 9.1 which presents the main conclusions derived from the study. It systematically answers the research questions and tests the working hypotheses. Thus, it verifies the validity of the main research hypothesis, solves the research problem and examines the extent to which the research goal and objectives have been achieved.
2) Subchapter 9.2 which addresses the limitations of the study, categorized into three main areas, including: (i) limitations in research geographical and thematic scope; (ii) methodological and field research limitations and (iii) practical challenges in the implementation of proposed strategies. These limitations highlight aspects that require further investigation and refinement in future research.
3) Subchapter 9.3 which outlines directions for future research, suggesting strategies to overcome the identified limitations. This includes expanding the geographical scope of analysis to encompass additional ecotourism destinations, improving research methodologies by incorporating advanced data collection and analytical techniques, and integrating external factors such as climate change, natural disasters, and global tourism trends into future studies.

9.1. Final Conclusions

This subchapter synthesizes the key findings by addressing the research questions, testing the working hypotheses, verifying the main hypothesis, and examining the achievement of the research goal and objectives.

Answering the Research Questions and Testing the Working Hypotheses

This section provides answers to the three research questions and evaluates the validity of the three corresponding working hypotheses formulated in the study. By analyzing the collected data and research findings, the study assesses whether the proposed hypotheses hold true and how the results contribute to a deeper understanding of ecotourism development in the Binh-Tri-Thien (BTT) region.

Research Question 1 and Working Hypothesis 1

The investigation has answered Research Question 1: 'What are the factors influencing the potential for ecotourism development in the Binh-Tri-Thien region?' through an assessment of the region's tourism and ecotourism advantages and disadvantages. Internal factors include natural and cultural resources and assets, tourism infrastructure, environmental management policies, and the level of political stability and security. Meanwhile, external factors encompass competition from other destinations in the region, the impacts of the COVID-19 pandemic, and climate change (as addressed in Sections 3.2 and 4.1). The findings indicated that, despite the BTT region's considerable potential for ecotourism development – driven by its favorable natural and cultural resources and assets, as well as a stable and secure sociopolitical environment – various unfavorable factors also posed significant challenges. These included underdeveloped infrastructure, strong competition from other tourist destinations in Vietnam and Southeast Asia, and the adverse effects of the COVID-19 pandemic and climate change.

The findings addressing Research Question 1 confirmed the validity of Working Hypothesis 1: Ecotourism development in the BTT region is shaped by a combination of internal and external factors. They demonstrated that ecotourism development in the BTT region was influenced by both internal and external factors, with positive and negative effects. Moreover, the study reaffirmed the region's significant ecotourism potential, largely due to its rich natural and cultural heritage and a stable sociopolitical environment. Simultaneously, the hypothesis' assertion regarding development challenges was also supported. The findings highlighted major obstacles such as underdeveloped infrastructure and intense competition from other tourist destinations in Vietnam and Southeast Asia. While Working Hypothesis 1 identified limited marketing capacity and workforce deficiencies as key constraints, the findings emphasized infrastructure limitations and external pressures (such as climate change and the pandemic) as the most pressing challenges.

Research Question 2 and Working Hypothesis 2

The research has answered Research Question 2: 'What are the strengths and weaknesses (internal), as well as the opportunities and threats (external) for the development of ecotourism in the Binh-Tri-Thien region?' by integrating primary and secondary data collection with qualitative and quantitative analyses. Based on this, the study has identified the SWOT factors, forming the basis for a comprehensive evaluation of the region's ecotourism potential and challenges.

The SWOT analysis revealed that the BTT region possesses significant strengths, including high biodiversity with the presence of national parks (S1), a rich and unique cultural heritage – particularly the traditions of ethnic minority communities (S2), active local community involvement in ecotourism services (S3), a diverse range of ecotourism activities already developed (S4), a safe and stable environment for ecotourism development (S5), and competitive costs compared to other destinations (S6). However, the study also identified notable weaknesses that might hinder ecotourism development, such as inadequate basic tourism infrastructure (W1), weak marketing and promotion capabilities for ecotourism (W2), limited community participation in ecotourism planning and management (W3), environmental pollution and biodiversity degradation in ecotourism areas (W4), and disparities in the quantity and quality of the tourism workforce across different locations (W5).

Regarding external factors, opportunities for ecotourism development in the BTT region include the growing global trend toward sustainable tourism, particularly ecotourism (O1), support from the Vietnamese government and international organizations (O2), and advancements in information technology and its applications in ecotourism (O3). However, the region also face significant threats, including the adverse effects of climate change and natural disasters (T1), intense competition from other ecotourism destinations in Vietnam and Southeast Asia (T2), political instability and economic downturns in Southeast Asia and globally (T3), the risk of disease outbreaks in high-density tourism areas (T4), and cultural degradation and the loss of traditional local values (T5) (as discussed in Subchapter 8.1).

The findings addressing Research Question 2 has confirmed the validity of Working Hypothesis 2: The strengths of ecotourism in the BTT region lie in its rich biodiversity, cultural heritage, and unique natural landscapes, while weaknesses include limited infrastructure, insufficient investment, and a lack of skilled workforce. Externally, opportunities arise from increasing demand for sustainable tourism and supportive policies, whereas threats stem from environmental degradation, competition with other destinations, and climate change. The analysis has identified significant strengths, weaknesses, opportunities, and threats influencing ecotourism development in the BTT region. To validate Working Hypothesis 2, this study was conducted as an evaluative assessment, in which all strengths, weaknesses, opportunities, and threats to ecotourism in the BTT region were identified and systematically examined. A qualitative approach, specifically SWOT/TOWS analysis, was applied to categorize and interpret these factors, thereby providing a holistic understanding of the region’s ecotourism landscape.

Research Question 3 and Working Hypothesis 3

The study has answered Research Question 3: 'What are the most viable strategies and pathways for promoting sustainable ecotourism development in the Binh-Tri-Thien region?' by proposing specific strategies and solutions based on sustainable development principles and the results of own investigation. Through the SWOT analysis and the application of the TOWS strategy, this dissertation has proposed four key strategic directions for sustainable ecotourism development in the BTT region (as detailed in Subchapter 8.2), including:

1) Conservative Strategy (Strenghs related to Threats): responding to climate change and natural disasters through conservation, adaptation, and enhanced tourism safety (ST1); developing unique ecotourism products linked to biodiversity conservation and cultural heritage for international competitiveness (ST2); ensuring safety and adaptability to regional economic-political instability while leveraging stability to attract tourists (ST3); preserving and promoting indigenous cultural values to prevent cultural degradation amid ecotourism development (ST4).
2) Aggressive Strategy (Strenghs related to Opportunities): supporting the local community in deeper participation in the ecotourism value chain for sustainable development (SO1); applying technology to promote tourism, enhance visitor experiences, and optimize tourism operations (SO2); developing cost-effective ecotourism in line with sustainable tourism trends to attract diverse visitors (SO3).
3) Competitive Strategy (Weaknesses related to Opportunties): improving ecotourism infrastructure by utilizing government and international organizational support (WO1); enhancing ecotourism promotion and marketing through digital technology to expand the market and strengthen brand recognition (WO2); promoting community participation in ecotourism activities to ensure economic benefits and sustainable development (WO3).
4) Defensive Strategy (Weaknesses related to Threats): improving tourism infrastructure to enhance resilience against natural disasters and climate change (WT1); controlling environmental pollution and biodiversity loss through conservation policies and green technologies (WT2); strengthening local community management and supervision capacity to adapt to economic-political instability (WT3); developing tourism human resources to preserve indigenous culture and reduce labor disparities between destinations (WT4).

The research also proposed four pathways for promoting sustainable ecotourism in the BTT region (as discussed in Section 8.3.5). These pathways were developed based on prior analyses, ensuring feasibility, strategic relevance, and alignment with local conditions and broader sustainable tourism trends, including: 1) sustainable ecotourism development linked to resource conservation; 2) digital transformation and AI integration in ecotourism; 3) diversification of ecotourism products linked to local culture; and 4) regional connectivity and international cooperation to expand the market.

The findings addressing Research Question 3 has confirmed Working Hypothesis 3, posited that the most viable pathways for promoting sustainable ecotourism development in the BTT region must balance economic efficiency, social inclusiveness, and environmental conservation. Development strategies should integrate community-based tourism models, eco-friendly tourism infrastructure, improved management policies, and enhanced community capacity to ensure long-term sustainability.

Verification of the Main Hypothesis and Resolution of the Research Problem

With the answers to the research questions and the confirmation of the three working hypotheses, the main hypothesis: The Binh-Tri-Thien region has significant potential for the development of ecotourism. However, this potential is, for various reasons, not sufficiently utilized for this purpose - was also validated. The research findings confirmed the substantiated hypothesis that the BTT region has significant potential for ecotourism development. However, this potential is not fully and effectively exploited due to various reasons. This conclusion has been based on the analyses of natural resources, cultural heritage, as well as barriers related to infrastructure, promotional strategies, community participation, and environmental-social pressures.

Firstly, the study confirmed that the BTT region possessed many favorable conditions for ecotourism development. National parks such as Phong Nha-Ke Bang, Bach Ma, as well as the A Nor Waterfall and Ngu My Thanh Village had high ecological value, distinctive natural landscapes, and diverse ecosystems. These factors met key criteria for an ecotourism destination, providing a solid foundation for the development of this type of tourism. In addition, cultural heritage was also a crucial advantage. Ethnic minority communities in the region (at the Phong Nha-Ke Bang National Park and A Nor Waterfall) played a role not only in preserving traditional knowledge but also in contributing to unique cultural tourism experiences. The combination of nature and culture made the BTT region a potential destination for sustainable ecotourism.

However, the study also identified several challenges in utilizing this potential. One of the biggest barriers was limitations in infrastructure and accessibility. Road quality did not meet the required standards, sustainable transportation options had not been developed, and the lack of tourism facilities made access to ecotourism sites difficult. Furthermore, ineffective promotional and marketing strategies were another reason why tourists, especially international visitors, had limited information about ecotourism destinations in the region. The absence of strong and targeted promotional campaigns resulted in low brand awareness for ecotourism in the BTT region. Additionally, local community participation in ecotourism activities remained limited. Although the community played a vital role in sustainable tourism development, actual participation was still insufficient due to a lack of training programs, financial support, and appropriate incentive policies. Moreover, the region faced significant environmental and social pressures. The growth of mass tourism, illegal resource exploitation, and unsustainable resource use severely threatened the ecosystem and the sustainability of ecotourism in the region.

Thus, grounded in the adopted ontological and epistemological foundations, the dissertation has successfully addressed the research problem by providing a comprehensive understanding of ecotourism development in the BTT region. Through assessing the region's potential for ecotourism and identifying the most effective strategies for its sustainable development, the study has answered the three research questions and verified the validity of the three working hypotheses as well as the main hypothesis.

Attainment of the Research Goal and Objectives

The dissertation achieved its immediate objectives by verifying the research hypotheses and answering the detailed research questions, including:

1) Research Objective 1: The assessment of the current status of ecotourism development in the BTT region was conducted through analyses of its assets, including: natural resources, cultural heritage, infrastructure, management policies, and socio-economic conditions. The barriers and limitations were clearly identified, particularly those affecting sustainable development potential.
2) Research Objective 2: A comprehensive SWOT analysis was conducted, providing a holistic and systemized view of the strengths, weaknesses, opportunities and threats related to ecotourism development in the region. The dissertation thoroughly evaluated internal and external factors while considering global influences such as climate change and the COVID-19 pandemic.

3) Research Objective 3: Strategies and solutions for sustainable ecotourism development were proposed based on a balanced approach between economic, environmental, and social aspects. These strategies were not only feasible but also offered specific solutions, contributing to improved management and ecotourism development in the region.

Thus, by achieving the specific objectives set out, the dissertation successfully attained its main goal. In particular, the study assessed the potential for ecotourism development in the BTT region by analyzing the current situation, identifying key influencing factors, and proposing sustainable development strategies.

Beyond achieving the aforementioned main goal and detailed objectives, the dissertation also contributed more broadly to academic knowledge on ecotourism by applying relevant theories and analytical methodological frameworks with practical applicability. The research findings not only reinforced existing theories but also provided additional empirical evidence and best practices for sustainable ecotourism development in the BTT region. The dissertation employed a triangulation strategy by integrating qualitative and quantitative methods as well as perspectives from various research schools. This methodological diversity enhanced the objectivity and reliability of the analytical results. In particular, the study utilized Geographic Information System (GIS) tools to identify and evaluate areas with high potential for ecotourism development. This spatial analysis not only supported the prioritization of suitable sites but also added a critical geographical dimension to the research. Finally, the proposed strategies and solutions for ecotourism development in the dissertation were not merely theoretical but also had practical applicability as thet were derived from a comprehensive analysis of the actual conditions in the study area, ensuring their feasibility and effectiveness when implemented.

9.2. Limitations

Although this dissertation has achieved its stated goal, certain limitations should be acknowledged.

Limitations in Research Scope

One of the primary limitations of this dissertation is the geographical scope of the study. Given the vast expanse of the BTT region and the constraints of field research duration, the study was limited to four specific sites: the Phong Nha-Ke Bang National Park, Bach Ma National Park, A Nor Waterfall, and Ngu My Thanh Village. While these sites were

systematically to reflect a diversity of natural conditions, socio-economic contexts, and levels of tourism development, each location possesses unique characteristics in terms of natural resources, tourism activities, and community involvement, leading to variations in analytical outcomes. Consequently, the conclusions drawn from this study may not fully represent the broader ecotourism development landscape across the entire BTT region.

Limitations in Methodology and Field Research

This study employs a mixed-methods research design that integrates both qualitative and quantitative approaches, utilizing surveys, interviews, and field observations as key empirical research tools. However, each method has inherent limitations:

1) Regarding interviews, the collected data may be influenced by respondents' subjectivity, particularly in the case of local residents. Personal emotions, experiences, and expectations may lead to biased responses, such as excessive pride of local communities in ecotourism or concerns about the impacts of climate change on ecotourism in the BTT region. To minimize the impact of subjectivity, the study employed a semi-structured interview approach with neutral questions to avoid influencing the responses. Furthermore, a diverse and structurally representative interview sample from different stakeholder groups was used to gather comprehensive perspectives.
2) Regarding the quantitative analysis, although surveys were conducted at four specific sites, the sample size may not be large enough to comprehensively capture the perspectives of all relevant stakeholder groups, including tourists, local communities, management authorities, and tourism enterprises. This limitation may reduce the accuracy of statistical analyses and impact the generalizability of the findings. Additionally, efforts to conduct large-scale online surveys were unsuccessful due to concerns about data security and privacy, which deterred potential respondents in Vietnam from participating.
3) Concerning data sources, this dissertation integrates both primary data (interviews, surveys) and secondary data (reports, statistics). However, secondary data may not always be up-to-date and may contain inaccuracies due to variations in data collection and aggregation methods. Some reports from government agencies may not fully reflect the actual state of ecotourism development in the BTT region, leading to limitations in analysis and forecasting.
4) Data collection primarily took place during the peak tourism season (from June to September), whereas ecotourism activities fluctuate seasonally and vary throughout the

year. As a result, the study does not fully capture changes in tourist behavior or community participation across different time periods. This seasonal bias may influence the assessment of market demand and the impacts of ecotourism on local livelihoods.

Limitations in Practical Implementation and Feasibility

Although this dissertation analyzes the role of local communities in ecotourism, the collected data may be insufficient to assess the long-term sustainability of existing ecotourism models. Evaluating the impact of ecotourism on local communities requires extended monitoring and assessment over multiple years, which falls beyond the scope of this study. The study does not deeply examine external factors such as climate change, natural disasters, pandemics (e.g., COVID-19), and conflicts of interest among different stakeholder groups due to inherent limitations in time and research capacity. These factors can significantly impact ecotourism development, especially in the context of increasing environmental changes and natural resource depletion.

While this dissertation proposes various strategies and solutions for sustainable ecotourism development in the BTT region, practical implementation may encounter numerous obstacles. Factors such as budget constraints, insufficient human resources, and inadequate coordination among stakeholders may affect the feasibility of the proposed policies. Effective cooperation between local authorities, businesses, and communities is essential for implementing development strategies. However, in practice, this coordination may face challenges due to differing interests among stakeholder groups.

9.3. Directions for Future Research

An approach to addressing the limitations in research scope is to expand the survey coverage to additional sites within the Binh-Tri-Thien (BTT) region. Future studies could extend the geographical scope by investigating other potential areas such as nature reserves, emerging community-based tourism villages, or underdeveloped ecotourism sites with significant potential. This expansion would enhance the representativeness of the study and provide a more comprehensive perspective on ecotourism development in the region. In addition, establishing a continuous data collection system and integrating the Geographic Information System (GIS) techniques for mapping ecotourism potential would improve the overall assessment of tourism sites and support sustainable planning and development.

To enhance the reliability of qualitative data, future research could employ in-depth interviews using e.g. the Delphi method to minimize biases and obtain more objective

insights. In terms of the quantitative analysis, increasing the survey sample size and adopting stratified sampling techniques would ensure that the collected data more accurately reflects key stakeholder groups (and their general representativeness). Data collection should also be conducted across multiple seasons to account for fluctuations in ecotourism activities. This approach would allow for a more precise analysis of seasonal variations, enabling the development of more adaptive and effective strategies. Furthermore, future research should incorporate (in a more in-depth way) external influencing factors such as climate change, natural disasters, and pandemics into analytical models.

To enhance the feasibility of ecotourism development solutions, greater collaboration among key stakeholders – including local governments, businesses, and communities – should be emphasized. Establishing an interdisciplinary coordination mechanism would help ensure alignment in the implementation of development policies.

By expanding the research scope, refining methodologies, and strengthening the practical applicability of proposed solutions, future studies can address the current limitations and contribute more effectively to the sustainable development of ecotourism in the BTT region. The integration of modern analytical tools, long-term data collection, and enhanced stakeholder collaboration will be crucial in optimizing ecotourism potential and ensuring sustainable benefits for local communities.

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Appendices

Appendix A: Questionnaire (English version)

A1. Questionnaire for tourists

Dear Sir/Madam,

My name is Le Anh Toai. I am a PhD candidate at the Cracow Pedagogical University, Poland. Within the scope of my research: 'A Study on the Status of Ecotourism Development in the Binh-Tri-Thien Region, Vietnam', I would like you to take the time to complete the survey form. Completing this survey will take about 10-20 minutes. I guarantee that your answers will only be for research purposes.

Your reply to the following questions is important for me to understand the current status of ecotourism and propose potential solutions.

Thank you for your time and participation.

Part 1. General information

1. Province/ Nation/ Country of residency: …….

2. Occupation: …….....

3. Gender: □Male □Female

4. Age group:

□18-28 □29-48 □48-65 □>65

5. Education level:

□Primary □ Secondary □ College and University □Postgraduate/Master/Ph. D

6. Monthly income per person

□Less than $500 □ $501 to $1.500 □ $1.501 to $3.000 □More than $3000

Part 2. The visits

7. Organization of travel and stay: □Independent □Organized tour

8. How many times have you visited this destination before?

□1 □2 □3 □More than 3

9. What means of transportation did you use to reach the destination?……

10. How long have you been at the destination?

□1 day □2 days □3 days □More than 3 days

11. Which source of information did you use to learn about the destination? *(You may select multiple answers)*

□Tourist company □Internet, Television, Social networks □Previous trip

□Newspaper, magazine, Brochures □Friends and relatives □Visitor Center of Information

Other (please specify): ……..

12. What motivated you to visit the destination? *(You may select multiple answers)*

□The site's ecological value, including its topography, attraction, uniqueness, biodiversity, and weather

□A tour that offers informative details about the destination with a reasonable price

□Great tour service, including easy accessibility on the transportation

□Cultural attractions such as traditions, customs, festivals, historical heritage and carving arts

□Opportunities for study and research

□The chance to meet new people who share similar interests

□The opportunity to experience tourism

□To escape the hustle and bustle of the urban life

□Engaging in physical activities

□Visiting as part of a larger trip to other destinations

□Improving the physical health

Other (please specify): …….

Part 3. Visitors' awareness on the ecotourism

13. According to you, what is your understanding of ecotourism? *(You may select multiple answers)*

□I know nothing about ecotourism

□Ecotourism is a type of tourism based on nature and indigenous culture associated with environmental education

□Ecotourism contributes to conservation and sustainable development efforts

□Ecotourism with the active participation of the local community

□Preserve and improve the lives of local residents

Other (please specify):……

14. According to you, what are the most important characteristics of ecotourism? *(You may select multiple answers)*

□ Traveling to natural destinations

□ Minimizing negative impacts on the environment

□ Raising environmental awareness

□ Providing direct financial benefits for conservation

□ Providing financial benefits and empowering local communities

□ Respecting local cultures

□ Supporting human rights and democratic movements

Other (please specify):……..

15. According to you, what types of ecotourism have experienced in the destination?

(You may select multiple answers)

□ Sightseeing

□ Walking in the forest

□ Experiencing waterfalls or streams

□ Camping

Other (please specify):…….

□Observing forest vegetation (bird watching, animal watching, etc.,)

□Adventure tour (climbing, exploring the cave, etc.,)

□Study and research

□Discovering local cultures

Part 4. Visitor's opinions about the tourism services at the destination

(Level: 1-Strongly unsatisfied; 2-Unsatisfied; 3-Neutral; 4-Satisfied; 5-Strongly satisfied)

16. In your opinion, what is your level of satisfaction with the following sightseeing services:

Factors	1	2	3	4	5
Natural attractions (flora and fauna)	□	□	□	□	□
Price of entrance tickets	□	□	□	□	□
Convenience on travelling to locations	□	□	□	□	□
Safety at attractions (presence of rescue teams)	□	□	□	□	□
Other (please specify):……	□	□	□	□	□

17. Did you have an eco-tour guide during your visit to the destination? If **YES**, what is your level of satisfaction with the following:

Factors	1	2	3	4	5
Language proficiency	□	□	□	□	□
Friendliness, professionalism and enthusiasm	□	□	□	□	□
Presentation skills	□	□	□	□	□
Information and educational content provided	□	□	□	□	□
Other (please specify):……	□	□	□	□	□

18. Did you use transportation services during your visit? If **YES**, what is your level of satisfaction with the following:

Factors	1	2	3	4	5
Easy access to transport	□	□	□	□	□
Available means of transport	□	□	□	□	□
Transportation cost	□	□	□	□	□
Transportation safety	□	□	□	□	□
Other (please specify):……	□	□	□	□	□

19. Did you use food services during your visit? If **YES**, what is your level of satisfaction with the following:

Factors	1	2	3	4	5
Food and beverage availability	□	□	□	□	□
Reasonable prices	□	□	□	□	□
Standards of hygiene and quality of food services	□	□	□	□	□
Variety of cuisine options	□	□	□	□	□
Staff professionalism and service quality	□	□	□	□	□

20. Did you use accommodation services during your visit? If **YES**, what is your level of satisfaction with the following:

Factors	1	2	3	4	5
Accommodation availability (e.g. homestay, hotel, camping)	□	□	□	□	□
Accommodation quality	□	□	□	□	□
Reasonable prices	□	□	□	□	□
Staff professionalism and service quality	□	□	□	□	□
Other (please specify):……	□	□	□	□	□

21. Did you use shopping services during your visit? If **YES**, what is your level of satisfaction with the following:

Factors	1	2	3	4	5
Variety of souvenirs	□	□	□	□	□
Reasonable prices	□	□	□	□	□
Staff professionalism and service quality	□	□	□	□	□
Other (please specify):……	□	□	□	□	□

22. Did you use entertainment services during your visit? If **YES**, what is your level of satisfaction with the following:

Factors	1	2	3	4	5
Local festivals and cultural events	□	□	□	□	□
Reasonable prices	□	□	□	□	□
Various recreational activities	□	□	□	□	□
Other (please specify):……	□	□	□	□	□

Part 5. Visitor's opinions about infrastructure, social and environmental matters

23. What is your opinion about the infrastructure? *Please rate the following factors: (Level: 1-Strongly unsatisfied; 2-Unsatisfied; 3-Neutral; 4-Satisfied; 5-Strongly satisfied)*

Factors	1	2	3	4	5
Availability and quality of power and water supply	□	□	□	□	□
Quality of communication systems	□	□	□	□	□
Availability of banking services	□	□	□	□	□
Cleanliness and adequacy of parking areas	□	□	□	□	□
Availability of public sanitation facilities and garbage containers	□	□	□	□	□
Effectiveness of safety warning systems for visitors	□	□	□	□	□

Quality of public signs	□	□	□	□	□
Adequacy of fire prevention and fighting systems	□	□	□	□	□
Quality of lighting systems on roads, pathways, and surrounding areas	□	□	□	□	□
Effectiveness of animal warning signs	□	□	□	□	□
Effectiveness of waste management systems	□	□	□	□	□
Other (please specify): ……..	□	□	□	□	□

24. What is your opinion about the safety level at the destination? *Please rate the following factors: (Level: 1-Strongly unsatisfied; 2-Unsatisfied; 3-Neutral; 4-Satisfied; 5-Strongly satisfied)*

Factors	1	2	3	4	5
The effectiveness of the warning sign system	□	□	□	□	□
The behavior and interaction among tourists	□	□	□	□	□
The behavior and interaction between tourists and local people	□	□	□	□	□
The behavior and interaction among local people	□	□	□	□	□
Accessibility to police assistance	□	□	□	□	□
The risk of infectious diseases (such as COVID-19, tropical insects and others)	□	□	□	□	□
Other (please specify): ……..	□	□	□	□	□

25. During your visit, how prevalent are the following social issues? *Please rate the following factors: (Level: 1-Never; 2-Rarely; 3-Moderate; 4-Much; 5-A lot)*

Factors	1	2	3	4	5
Theft and robbery	□	□	□	□	□
Begging	□	□	□	□	□
Street vendors harassing visitors	□	□	□	□	□
Racial discrimination	□	□	□	□	□
Gender discrimination	□	□	□	□	□
Other (please specify):……..	□	□	□	□	□

26. During your visit, how prevalent is the quality of the environment? *Please rate the following factors: (Level: 1-Very Low; 2-Low; 3-Average; 4-High; 5-Very high)*

Factors	1	2	3	4	5
Air quality	□	□	□	□	□
Soil quality	□	□	□	□	□
Surface-water quality	□	□	□	□	□
Use of clean energy sources	□	□	□	□	□
Other (please specify):……..	□	□	□	□	□

27. What is your opinion on the occurrence of the following negative effects at the destination? *Please rate the following factors: (Level: 1-Never; 2-Rarely; 3-Moderate; 4-Much; 5-A lot)*

Factors	1	2	3	4	5
Sale of endangered species or products made from rare species	□	□	□	□	□
Unauthorized construction of structures or graves	□	□	□	□	□
Deforestation	□	□	□	□	□
Overfishing and indiscriminate killing of wildlife	□	□	□	□	□
Excessive harvesting of plants or herbs	□	□	□	□	□
Cattle grazing at ecotourism destination	□	□	□	□	□
Graffiti or carvings on trees	□	□	□	□	□
Other (please specify):……..	□	□	□	□	□

28. How satisfied are you with the interpretative facilities services) at the destination? *Please rate the following factors: (Level: 1-Strongly unsatisfied; 2-Unsatisfied; 3-Neutral; 4-Satisfied; 5-Strongly satisfied)*

Factors	1	2	3	4	5
Availability of information sources (e.g., advertising, social media)	□	□	□	□	□
Content quality provided by the tour guide regarding environmental information	□	□	□	□	□
Presentation skills on delivering the information	□	□	□	□	□
Facilities and equipment for delivering the environmental education and interpretation	□	□	□	□	□
Other (please specify):……..	□	□	□	□	□

Part 6. In summary, the final part

29. In your opinion, how would you rate the potential for ecotourism at the destination?

□Very little □Little □Medium □Large □Very large

30. Would you like to re-visit this destination?

□ Never □Rarely □Moderate □Much □A lot

31. Would you like to recommend this destination?

□ Never □Rarely □Moderate □Much □A lot

32. Would you like to give positive comments about this destination?

□ Never □Rarely □Moderate □Much □A lot

33. To help develop the ecotourism at this destination, please suggest solutions for future improvements:…….

A2. Questionnaire for local community

Dear Sir/Madam,

My name is Le Anh Toai. I am a PhD candidate at the Cracow Pedagogical University, Poland. Within the scope of my research: 'A Study on the Status of Ecotourism Development in the Binh-Tri-Thien Region, Vietnam', I would like you to take the time to complete the survey form. Completing this survey will take about 10-20 minutes. I guarantee that your answers will only be for research purposes.

Your reply to the following questions is important for me to understand the current status of ecotourism and propose potential solutions.

Thank you for your time and participation.

Part 1. General information

1. Province/ Nation/ The country of residency: ……

2. What is your occupation or representative role? *Please select one of the following options:*

□ Authorities, NGOs representatives, and other officials

□ Local businesses, including family-owned and small enterprises

□ Individuals who are not involved in the tourism

□ Industrial businesses, such as large companies, hotel chains, and rental car companies, among others.

3. Gender: □Male □Female

4. Age group:

□18-28 □29-48 □48-65 □>65

5. Education level:

□Primary □ Secondary □ College and University □Postgraduate/Master/Ph. D

6. Annual income:

□<$5000 □$5000-7000 □$7000-9000 □>$9000

Part 2. Local residents awareness on the ecotourism

7. According to you, what is your understanding of ecotourism? (*You may select multiple answers*)

□I know nothing about ecotourism

□Ecotourism is a type of tourism based on nature and indigenous culture associated with environmental education

□Ecotourism contributes to conservation and sustainable development efforts

□Ecotourism with the active participation of the local community

□Preserve and improve the lives of local residents

Other (please specify):……

8. According to you, what are the most important characteristics of ecotourism? *(You may select multiple answers)*

□ Traveling to natural destinations

□ Minimizing negative impacts on the environment

□ Raising environmental awareness

□ Providing direct financial benefits for conservation

□ Providing financial benefits and empowering local communities

□ Respecting local cultures

□ Supporting human rights and democratic movements

Other (please specify):……..

Part 3. The impact of ecotourism on the economy, society, and environment

9. How satisfied are you with the national guidelines on the sustainable development of ecotourism? *Please rate the following factors: (Level: 1-Strongly unsatisfied; 2-Unsatisfied; 3-Neutral; 4-Satisfied; 5-Strongly satisfied)*

Factors	1	2	3	4	5
Regulatory frameworks for ecotourism in the region	□	□	□	□	□
Regulations applied to stakeholders who are part of the ecotourism projects including planning, development, and implementation	□	□	□	□	□
The national regulations for sustainable tourism development	□	□	□	□	□
The government's financial support for ecotourism development	□	□	□	□	□
Other (please specify):……..	□	□	□	□	□

10. In your opinion, how much does the ecotourism impact on local economic development? *Please rate the following factors:(Level: 1-Very Low; 2-Low; 3-Average; 4-High; 5-Very high)*

Factors	1	2	3	4	5
Incomes generated from ecotourism businesses	□	□	□	□	□
Support for the livelihood of communities	□	□	□	□	□
Prices of food and commodities	□	□	□	□	□
Prices of land and property	□	□	□	□	□
Attraction on the domestic and foreign investment	□	□	□	□	□
Other (please specify):……..	□	□	□	□	□

11. In your opinion, how engaging is the local community in ecotourism activities? *Please rate the following factors: (Level: 1-Very Low; 2-Low; 3-Average; 4-High; 5-Very high)*

Factors	1	2	3	4	5
Protection of forests, trees, and green spaces	□	□	□	□	□
Planting seedlings	□	□	□	□	□
Protection of wildlife and endangered animals	□	□	□	□	□
Adherence to laws and regulations	□	□	□	□	□
Preservation and maintenance on art, culture, and handicrafts	□	□	□	□	□
Community initiatives on ecotourism development	□	□	□	□	□
Attendance in training sessions to raise awareness on ecotourism development and environmental protection	□	□	□	□	□
Active involvement in management meetings					
Other (please specify):……..	□	□	□	□	□

11. In your opinion, how engaging is the local community in ecotourism activities? *Please rate the following factors: (Level: 1-Very Low; 2-Low; 3-Average; 4-High; 5-Very high)*

Factors	1	2	3	4	5
Participate in management and supervision	□	□	□	□	□
Providing tourism services	□	□	□	□	□
Environmental and cultural protection	□	□	□	□	□
Participate in training and capacity building	□	□	□	□	□
Participate in tourism advertising	□	□	□	□	□
Build a friendly local tourism image	□	□	□	□	□

12. What is your opinion about the infrastructure? *Please rate the following factors: (Level: 1-Strongly untisfied; 2-Unsatisfied; 3-Neutral; 4-Satisfied; 5-Strongly satisfied)*

Factors	1	2	3	4	5
Availability and quality of power and water supply	□	□	□	□	□
Quality of communication systems	□	□	□	□	□
Availability of banking services	□	□	□	□	□
Cleanliness and adequacy of parking areas	□	□	□	□	□
Availability of public sanitation facilities and garbage containers	□	□	□	□	□
Effectiveness of safety warning systems for visitors	□	□	□	□	□
Quality of public signs	□	□	□	□	□
Adequacy of fire prevention and fighting systems	□	□	□	□	□
Quality of lighting systems on roads, pathways, and surrounding areas	□	□	□	□	□
Effectiveness of animal warning signs	□	□	□	□	□
Effectiveness of waste management systems	□	□	□	□	□
Other (please specify): ……..	□	□	□	□	□

13. What is your opinion about the safety level? *Please rate the following factors: (Level: 1-Strongly unsatisfied; 2-Unsatisfied; 3-Neutral; 4-Satisfied; 5-Strongly satisfied)*

Factors	1	2	3	4	5
The effectiveness of the warning sign system	□	□	□	□	□
The behavior and interaction among tourists	□	□	□	□	□
The behavior and interaction between tourists and local people	□	□	□	□	□
The behavior and interaction among local people	□	□	□	□	□
Accessibility to police if needed	□	□	□	□	□
The risk of infectious diseases (such as COVID-19 and others)	□	□	□	□	□

14. According to you, how prevalent are the following social issues? *Please rate the following factors:(Level: 1-Never; 2-Rarely; 3-Moderate; 4-Much; 5-A lot)*

Factors	1	2	3	4	5
Theft and robbery	□	□	□	□	□
Begging	□	□	□	□	□
Street vendors harassing visitors	□	□	□	□	□
Racial discrimination	□	□	□	□	□
Gender discrimination	□	□	□	□	□
Other (please specify):……..	□	□	□	□	□

15. According to you, how prevalent is the quality of the environment? *Please rate the following factors: (Level: 1-Very Low; 2-Low; 3-Average; 4-High; 5-Very high)*

Factors	1	2	3	4	5
Air quality	□	□	□	□	□
Soil quality	□	□	□	□	□
Surface water quality	□	□	□	□	□
Capacity of the ecosystem to handle tourism activities	□	□	□	□	□
Use of clean energy sources	□	□	□	□	□
Other (please mention):……..	□	□	□	□	□

16. What is your opinion on the occurrence of the following negative effects? *Please rate the following factors:(Level: 1-Never; 2-Rarely; 3-Moderate; 4-Much; 5-A lot)*

Factors	1	2	3	4	5
Sale of endangered species or products made from rare species	□	□	□	□	□
Unauthorized construction of structures or graves	□	□	□	□	□
Deforestation	□	□	□	□	□
Overfishing and indiscriminate killing of wildlife	□	□	□	□	□
Excessive harvesting of plants or herbs	□	□	□	□	□
Cattle grazing at ecotourism destination	□	□	□	□	□
Graffiti or carvings on trees	□	□	□	□	□
Other (please specify):……..	□	□	□	□	□

17. What is your level of satisfaction with the tour services at the destination? *Please rate the following factors: (Level: 1-Strongly unsatisfied; 2-Unsatisfied; 3-Neutral; 4-Satisfied; 5-Strongly satisfied)*

Factors	1	2	3	4	5
Availability of information sources (e.g., advertising, social media)	□	□	□	□	□
Content quality provided by the tour guide regarding environmental information	□	□	□	□	□
Presentation skills on delivering the information	□	□	□	□	□
Facilities and equipment for delivering the environmental education and interpretation	□	□	□	□	□
Other (please specify):……..	□	□	□	□	□

Part 4. In summary, the final part

18. In your opinion, how would you rate the potential for ecotourism at this destination?

□Very little □Little □Medium □Large □Very large

19. In your opinion, what is the impact level of ecotourism on the local communities? *Please rate the following: (Level: 1-Very negative; 2-Negative; 3-No impact; 4-Positive; 5-Very positive)*

Factors	1	2	3	4	5
The local economy	□	□	□	□	□
The local society	□	□	□	□	□
The local environment	□	□	□	□	□

20. To help develop ecotourism in this destination, please suggest some solutions for future improvements:……

Appendix B: In-depth Interview

B1. Questions for Official Management

I. Introduction and Overview

1) Could you share a brief overview of your role and main responsibilities at the ecotourism site? Follow-up: How long have you been working in this role?
2) Could you provide a summary of the ecotourism site you manage, particularly focusing on its background, scale, services, and visitor numbers? Follow-up: What makes this site unique in terms of ecological or natural features (e.g., wildlife)?
3) How do you evaluate the potential for ecotourism development in the Bình Trị Thiên region? Follow-up: Are there specific natural or cultural advantages that could enhance ecotourism development?

II. Visitor Information and Trends

4) Is there a system to record statistics on tourist visits (e.g., number of visitors, percentage of international vs. domestic tourists)?
5) What is the peak tourist season? Why?
6) What are the main activities tourists engage in at the site? What is the average expenditure per visitor?
7) What advertising and marketing methods have been used to attract tourists?

III. Infrastructure and Support Services

8) How well do the infrastructure and services at the site meet visitors' needs? Follow-up: Could you elaborate on transportation, accommodations, or facilities for ecotourism (e.g., visitor centers, trails, hotels, souvenir shops)?
9) Are there facilities that contribute to environmental education for visitors (e.g., interpretive signs, brochures, videos)?

IV. Management and Sustainable Development

10) Could you share the site's strategies for environmental protection and sustainable development?
11) Policies on waste management, environmental education programs for visitors? Follow-up: What specific measures have been implemented to manage waste or conserve ecosystems?
12) What strategies or activities have been carried out to promote sustainable ecotourism? Follow-up: What are the main challenges in implementing these activities?

V. Human Resources

13) Does the number and quality of staff meet the needs of tourism services? Follow-up: What are their main responsibilities, and how are they compensated?

14) How are staff trained to support ecotourism? Please explain.

VI. Trends and Development Plans

15) How do you view the future trends of ecotourism in the BTTregion? Follow-up: Have you noticed any changes in tourists' preferences in recent years?

16) Are there any development or service improvement plans for your site to meet visitors' demands? Follow-up: What areas are prioritized for investment to enhance ecotourism quality?

VII. Challenges and Opportunities

17) What are the biggest challenges your site faces in developing ecotourism? Follow-up: Do these challenges stem from management, infrastructure, competition, or environmental issues?

18) What opportunities do you see for ecotourism development in the future? Follow-up: Are there any new trends or initiatives you are considering?

VIII. Advice and Contributions

19) Do you have any suggestions or recommendations for policies to support ecotourism development in BTT region? Follow-up: How can government or local organizations contribute to these efforts?

20) What advice would you give to other sites aiming to develop sustainable ecotourism?

B2. Questions for Local Community

I. Introduction to Life and Local Connections

1) How long have you lived here? Has your family been living in this area for multiple generations? Follow-up: Does your family participate in community activities or work in the tourism sector?

II. Impact of Tourism on Life

2) How has your life changed since tourism developed in the area? Follow-up: Have you noticed any benefits or challenges from this development for your family and community?

3) Do you feel comfortable welcoming tourists to your village? Follow-up: Do you have opportunities to interact, exchange ideas, or learn from visitors?

III. Participation in Tourism Activities

4) What tourism-related activities do you or your family usually participate in within the local area? Follow-up: How do these activities impact your family's daily life?
5) Have you noticed any changes in community life since tourism began to grow in this area? Follow-up: Are you satisfied with these changes? Why or why not?
6) Are you familiar with community-based tourism projects in your area? Follow-up: How do you evaluate the impact of these projects on the community?

IV. Decision-Making and Conservation Participation

7) Are you aware of the villagers' involvement in decision-making during the tourism planning process? Follow-up: How have you or the community contributed to these plans?
8) Do you participate in any environmental conservation or sustainable tourism activities? Follow-up: How are these conservation activities carried out, and do you find them effective?

V. Expectations for Future Tourism Development

9) What are your hopes for the future of tourism development in this area? Follow-up: Do you have any suggestions for improving sustainable tourism development and enhancing the quality of life for the community?

Appendix C: Photos of Field Research

Picture 1. Wildlife watching at the Bach Ma National Park[7]

Picture 2. Exploring caves at the Phong Nha-Ke Bang National Park

Picture 3. Experience indigenous culture at the A Nor Waterfall

Picture 4. Plant researching at the Ngu My Thanh village

Picture 5. Sightseeing services at the Bach Ma National Park

Picture 6. Accommodation services at the Phong Nha-Ke Bang National Park

Picture 7. Food services at the A Nor Waterfall

Picture 8. Transportation services at the Ngu My Thanh Village

[7] The pictures were taken by the author, the author's colleagues, and sourced from social media platforms (with permission granted) during field research trips

Picture 9. Interpreting services at the Bach Ma Visitor Center

Picture 10. Entertainment services at the Phong Nha-Ke Bang National Park

Picture 11. Bathing in the stream at the A Nor Waterfall

Picture 12. Learning activities at the Bach Ma National Park

Picture 13. Interviewing local households

Picture 14. Interviewing cooperative management staff

Picture 15. Survey at the Bach Ma National Park Visitor Center

Picture 16. Observing and experiencing ecotourism activities at the A Nor Waterfall