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Review

A sustainable framework for urban ecotourism development: A comparative literature review of policy and practices in Thailand and China

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Abstract: This research aims to identify best practices and policy guidelines that foster sustainable urban ecotourism. As urban areas continue to expand, integrating ecotourism into urban planning emerges as a critical approach to sustainable development. This paper compares the policies and practices of urban ecotourism development in Thailand and China, aiming to construct a sustainable framework applicable to urban ecotourism development. Employing a comparative literature review, this research synthesizes findings from peer-reviewed journals, governmental reports, and case studies published between 2000 and 2024. The analysis focuses on the policies and practices adopted by Thailand and China to promote urban ecotourism, examining their effectiveness, challenges, and outcomes. The review shows distinct approaches in the two countries, with Thailand emphasizing community-based practices and stakeholder involvement and China primarily focusing on top-down policy initiatives for urban ecotourism development. Despite differing strategies, both countries demonstrate a commitment to integrating ecotourism into urban development plans. From the environmental, socio-cultural, and economic three dimensions, key successes include enhanced biodiversity conservation, increased local community participation, and improved tourist satisfaction. Challenges such as inadequate policy implementation, environmental degradation, and the sustainability of ecotourism practices are also discussed. The conclusion is that a holistic approach to urban ecotourism development that aligns policy and practice with the principles of sustainability is meaningful. The proposed framework offers actionable insights for policymakers, urban planners, and ecotourism practitioners aiming to use the potential of ecotourism as a tool for sustainable urban development in Thailand, China, and beyond.

Keywords: urban ecotourism; sustainable development; policy; Thailand; China

1. Introduction

Urban areas globally are undergoing rapid growth, posing significant environmental, social, and economic challenges. The integration of ecotourism into urban planning is emerging as a critical strategy for achieving sustainable development goals. Urban ecotourism, combining the principles of traditional ecotourism with urban characteristics, offers a pathway to promote sustainability while enhancing the quality of life for urban residents and visitors (Duy et al., 2020). Ecotourism, traditionally associated with natural and rural areas, focuses on responsible travel to natural areas, conserving the environment, and improving local communities' well-being (Reimer and Walter, 2013). The concept gained prominence in the late 20th century as a response to the negative impacts of mass tourism on natural and cultural resources. It was globally recognized as a means of achieving biodiversity conservation and sustainable development (Baruah, 2020). Initially, ecotourism initiatives were primarily concentrated in rural areas, where pristine environments and

indigenous cultures could be showcased and preserved. However, as urbanization intensifies, there is a growing recognition of the need to adapt ecotourism principles to urban settings (Hussain et al., 2019). Ecotourism is adapting to urban settings due to the increasing appreciation of nature and heritage sites and the recognition of tourism's role in promoting conservation and socio-economic benefits (Aversa et al., 2017).

In the literature, urban ecotourism has various definitions that reflect its multifaceted nature. Dewi et al. (2023) define urban ecotourism as "a concept of ecotourism developed in urban areas utilizing the urban environment for the enjoyment and appreciation of tourists towards natural and cultural environments, ecological sustainability, economic development, and promoting local community culture" (Dewi et al., 2023). Sofyan et al. (2024) describe it as ecotourism projects in urban forests supported by community participation, focusing on awareness of ecosystem services to achieve sustainable urban development (Sofyan et al., 2024). According to Wu et al. (2010), urban ecotourism is defined as natural travel and conservation activities within an urban environment. Its focus includes restoring and conserving natural landscapes, biodiversity, and local culture (Wu et al., 2010). It emphasizes maximizing local benefits, encouraging local communities to act as hosts, investors, and guides, and educating visitors and residents about environmental issues, heritage resources, and sustainability. Akkuş and Gül (2022) point out that urban ecotourism respects the natural ecosystems of cities and emphasizes exploring and visiting natural and cultural resources. Its main goals are to protect and renew natural and cultural heritage, maximize local benefits, increase citizens' and visitors' awareness of environmental issues and the value of historical heritage, and reduce ecological footprints (Akkuş and Gül, 2022). The theoretical foundations of urban ecotourism are diverse. According to Kaae et al. (2019), urban ecotourism combines sustainable tourism with nature tourism in urban settings, focusing on conservation, education, and community well-being (Kaae et al., 2019). This concept also emphasizes the restoration and rewilding of industrial wastelands to create new ecosystems. This approach supports ecological restoration, reduces transportation needs, and provides stable financial benefits for local communities (Hoang and Pulliat, 2019). Lin et al. (2016) suggest that urban ecotourism is guided by eco-conservation principles, aiming to find meaningful and low-impact tourism options. Tourists are encouraged to use walking paths, cycling routes, and public transportation to explore natural areas around cities and participate in local cultural activities in a low-carbon and energy-efficient way, thus gaining educational and recreational tourism experiences (Lin et al., 2016). These definitions and theories provide a foundational understanding of the broad content and multiple objectives of urban ecotourism, aiding in achieving more sustainable tourism development in urban environments.

1.1. Global urban ecotourism development

Globally, urban ecotourism is growing, with examples such as Nature Park Amager in Denmark, which transformed from a wasteland into a thriving ecotourism destination through urban rewilding (Kaae et al., 2019). Similar projects in New York and Seoul illustrate the global trend of urban rewilding and its potential benefits for

ecotourism and local communities. In Ethiopia, positive attitudes towards urban ecotourism are linked to higher education levels (Nigatu et al., 2021). Malaysia and Taiwan have seen substantial growth in urban ecotourism, driven by national plans and shifts in tourist behavior during the pandemic (Chong et al., 2020; Lin et al., 2022). In Indonesia, sustainable management practices are needed to protect urban ecotourism areas from human disturbance (Purify et al., 2019; Sofyan et al., 2024). One study focuses on developing birdwatching as a new ecotourism product in Kupang City, Indonesia, to maintain its status as a sustainable city through urban forest ecosystem management (Aryantie et al., 2023). Additionally, research on community participation in urban ecotourism in Bogor, Indonesia, highlights the need for continuous community engagement and improved economic benefits to enhance participation (Dewi et al., 2023). A study on El Kantara, Algeria, proposes a sustainable urban development scenario through ecological tourism, emphasizing eco-friendly transport and conservation of heritage sites (Lebbal and Bensmina, 2023). Urban ecotourism outlines the significance of cultural and architectural attractions in cities, stressing the economic impact and diverse tourism activities in urban settings. Urban ecotourism policies must promote local and regional tourism, enhance community support, and manage cultural services sustainably.

1.2. Thailand and China urban ecotourism development

In Thailand and China, urban ecotourism has evolved differently. Thailand focuses on community-based practices and stakeholder involvement, while China emphasizes strong government intervention (Auesriwong et al., 2015; Brandt et al., 2012). Both countries aim to use ecotourism for sustainable urban development.

In Thailand, ecotourism is defined as tourism that emphasizes experiencing and conserving the natural environment while respecting and promoting the cultural heritage of local communities (Boruah et al., 2021). Thai ecotourism aims to create low-impact, sustainable travel experiences that benefit local economies and promote environmental education. The Thai approach is often characterized by community-based tourism projects where local communities play a significant role in managing and benefiting from tourism activities (Álvarez-García et al., 2018). There is a strong emphasis on preserving biodiversity, promoting sustainable livelihoods, and integrating traditional cultural experiences into the tourism offerings (Junead and Ngamniyom, 2021). Urban ecotourism has evolved alongside the country's broader tourism development strategies, focusing on preserving green spaces, promoting cultural heritage, and enhancing the quality of life for urban residents (Fu et al., 2023). Known for its rich cultural heritage and biodiversity, Thailand has long recognized the importance of sustainable tourism practices (Auesriwong et al., 2015). Over the past few decades, the country has made concerted efforts to promote ecotourism as a means of preserving its natural and cultural assets while generating economic benefits for local communities. The Thai government has implemented various policies and initiatives to support community-based ecotourism projects, particularly in rural and natural areas (Bunruamkaew and Murayama, 2012). These efforts have gradually extended to urban settings, where community involvement and stakeholder engagement are emphasized to ensure the sustainability of ecotourism activities.

In China, ecotourism is defined as a form of sustainable tourism that focuses on the conservation of natural environments and the cultural integrity of local communities (De Jong, 2019). It aims to provide educational experiences for tourists while promoting environmental awareness and sustainable development. The Chinese approach often emphasizes large-scale national parks and nature reserves, integrating ecotourism with broader environmental conservation and rural development strategies (Araya and Peters, 2023). Policies and initiatives frequently involve government planning and support, with a focus on promoting eco-friendly practices and balancing tourism with environmental preservation (Jianchu, 2006). The rapid pace of urbanization has presented both opportunities and challenges for the development of urban ecotourism in China. China's urbanization process, which accelerated in the late 20th and early 21st centuries, has transformed the country's social, economic, and environmental landscape. As cities expanded, concerns about environmental degradation, loss of biodiversity, and the deterioration of cultural heritage became more pronounced. In response, the Chinese government has implemented a series of policies aimed at promoting sustainable urban development, including the integration of ecotourism into urban planning (Brandt et al., 2012). China's approach to urban ecotourism is characterized by strong government intervention, with policies and regulations designed to mitigate the environmental impacts of urbanization and enhance the quality of urban life.

The historical context of urban ecotourism development in Thailand and China highlights the different paths taken by the two countries. Thailand's emphasis on community-based practices and stakeholder involvement reflects its commitment to grassroots development and the equitable distribution of tourism benefits. In contrast, China's top-down approach underscores the role of government agencies in steering urban development and implementing large-scale environmental and tourism initiatives. Despite these differences, both countries share a common goal of using ecotourism as a tool for sustainable urban development. As urban areas continue to expand, the experiences of these two countries offer valuable insights into the potential of urban ecotourism to contribute to sustainable urban development. By learning from their successes and challenges, other cities around the world can adopt and adapt best practices to create more sustainable and resilient urban landscapes.

The significance of this study lies in its examination of urban ecotourism within the specific contexts of China and Thailand. These countries, characterized by rapid urbanization and significant biodiversity, present unique opportunities and challenges for urban ecotourism (Thinnakorn, 2021). Understanding how urban ecotourism is developed and implemented in these regions can provide valuable insights into best practices and innovative approaches that can be applied globally.

This study aims to bridge the gap in the literature by providing a comprehensive analysis of urban ecotourism projects and their impacts on local communities and ecosystems. The purpose of this research is to explore how urban ecotourism can be effectively integrated into urban planning to promote sustainability and enhance urban quality of life. The research approach involves analyzing case studies and best practices from Thailand and China to provide actionable recommendations for policymakers and urban planners.

2. Materials and methods

This research employs a comparative literature review methodology to identify best practices and policy guidelines that foster sustainable urban ecotourism development. The review focuses on the policies and practices adopted by Thailand and China, aiming to construct a sustainable framework applicable to urban ecotourism development. The materials and methods section outlines the systematic approach used to collect, analyze, and synthesize data from various sources.

2.1. Data collection

The data collection process involved sourcing information from peer-reviewed journals, governmental reports, and case studies published between 2000 and 2024. By covering more than two decades, the research can identify long-term trends and patterns in urban ecotourism development. Extensive searches were conducted using academic databases: Scopus, and Google Scholar, due to their broad coverage and accessibility to a wide range of academic content. Keywords used in the search included “urban ecotourism”, “sustainable tourism”, “ecotourism policies”, “Thailand ecotourism”, and “China ecotourism”. Boolean operators (AND, OR) were used to refine the searches and capture a wide range of relevant literature:

(“Urban Ecotourism”) AND (“Thailand” OR “China”)

(“Sustainable Tourism”) AND (“Thailand” OR “China”)

(“Ecotourism Policy”) AND (“Thailand” OR “China”)

2.2. Inclusion and exclusion criteria

The selection criteria for literature in this study were designed to ensure relevance and rigor, focusing specifically on urban ecotourism in Thailand and China. Included materials are empirical or conceptual works that have undergone peer review: journal articles, book chapters vetted by editorial committees, and doctoral theses endorsed by supervisory committees, published between 2000 and 2024 to capture contemporary developments. Only English-language publications were considered to maintain clear comprehension. Excluded materials include book series, individual books, conference proceedings, literature published before 2000, and non-English texts. Finally, in line with the objectives that focus on urban ecotourism development in Thailand and China, only articles relevant to the subject matter were selected, as presented in **Table 1.**

Table 1. Inclusion and exclusion criteria.

Criterion	Inclusion	Exclusion
Type of Literature	Peer-reviewed journal articles, book chapters in edited volumes, or doctoral dissertations with supervisory committees.	Book series, individual books, conference proceedings.
Timeline	Publications from 2000 to 2024.	Publications before 2000.
Language	English	Non-English
Context	Articles focused on urban ecotourism.	Articles not related to urban ecotourism.
Geographical Scope	Relevant to Thailand and China.	Irrelevant to Thailand and China.

Records identified through database searching (Scopus: 228; Google Scholar:

326) were initially imported and screened for duplicates, resulting in the exclusion of 15 duplicates. This left a total of 539 records to be screened based on their titles and abstracts. Out of these, 455 records were excluded due to criteria such as book series, books, conference proceedings published before 2000, non-English language, and irrelevance to Thailand and China. The remaining 84 full-text articles were carefully evaluated for eligibility. Ultimately, 54 articles were excluded for not focusing on urban ecotourism in Thailand and China. Consequently, 30 studies met the inclusion criteria and were included in the final review. The detailed process is illustrated in **Figure 1**.

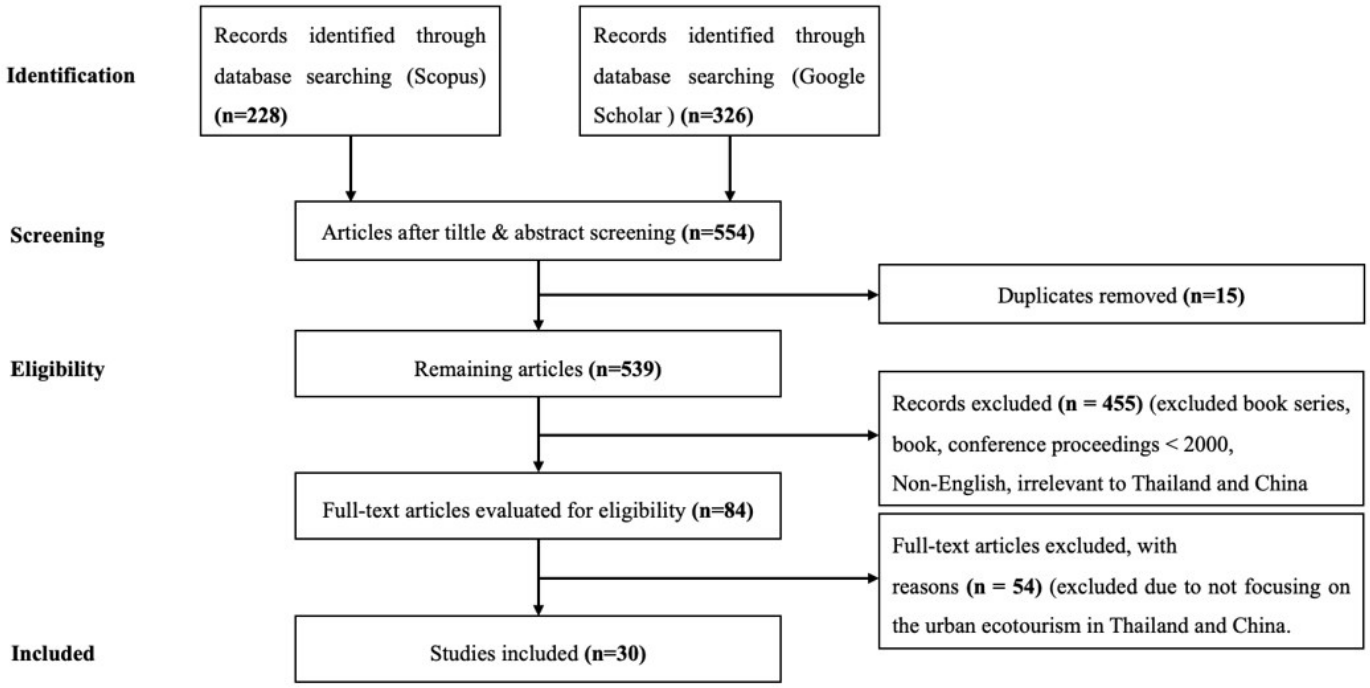

Figure 1. Flowchart of included articles in the review from 2000 to 2024.

3. Results and discussion

Out of the 30 articles that met our inclusion criteria, including 11 qualitative studies, 7 quantitative studies, 10 mixed methods studies, and 2 review articles. Geographically, the research is evenly distributed with 15 studies focusing on Thailand and 15 on China. This balance allows for a comprehensive comparison between the two countries' approaches to urban ecotourism. Refer to **Table 2** for more information.

Table 2. Study characteristics included in reviews.

No. Study	Country	Purpose	Methods	Participant	Analysis
1. (Bhati, 2021)	T[1]	To examine the relationship between psychographic variables and tourist behavior in relation to vandalism in Thailand's urban ecotourism sites.	Mixed	600 samples, 30 KIs[3]	Variables analysis, thematic analysis
2. (Fu et al., 2023)	T	To examine Thailand's tourism development via social media analysis.	Qualitative	10,008 tweets	Content Analysis
3. (Gozzoli et al., 2022)	T	Explore design thinking for sustainable community development in East Bangkok.	Qualitative	80 KIs	Thematic analysis
4. (Jamil and Puad, 2010)	T	To compare infrastructure management for urban tourism in three Asian cities.	Qualitative	Bangkok, Phnom Penh, Georgetown	Comparative analysis, thematic analysis
5. (Kiatkawsin et al., 2021)	T	To explore potential for heritage tourism along Western Bangkok canals.	Mixed	348 samples, Western Bangkok canals	Spatial and cultural heritage analysis
6. (Koodsela et al., 2019)	T	To analyze urban tourism development plan-making practices towards sustainability in Thailand.	Mixed	600 samples, Chiang Mai and Phuket	Variables analysis, content analysis
7. (Maneethorn et al., 2023)	T	To explore the level of innovation in Pattaya City administration and its impact on strategic development.	Quantitative	400 samples	Multiple regression analysis
8. (Prarat et al., 2020)	T	To investigate microplastic abundance and characteristics in Rayong Province beaches.	Mixed	Beach sediment samples from three beaches	Statistical analysis
9. (Somnuek, 2010)	T	To establish and assess a CBT[4] network in Ban Sai Moon and Ban Phosri.	Mixed	60 samples, 2 communities	Content analysis, descriptive statistics
10. (Thinnakorn, 2021)	T	To study the image and landscape of Nakhon Si Thammarat's Old Town Community and find ways to preserve and develop it.	Mixed	280 samples, 1 community	Content Analysis, Multiple regression analysis
11. (Chandiramani et al., 2021)	T	To understand gender-based tourist behavior in Bangkok.	Mixed	2655 travelers, 29,300 check-ins	Z-test, spatial analysis using Google Earth Pro
12. (Vithayaporn et al., 2023)	T	To identify the factors that influence the performance of green logistics in urban tourism activities in Thailand's Eastern Economic Corridor.	Qualitative	25 KIs	Content analysis
13. (Waiyasusri and Chotpantarat, 2022)	T	To analyze the spatial evolution of a coastal tourist city using the Dyna-CLUE model.	Quantitative	Not specified	Logistic regression analysis
14. (Tananonchai, 2022)	T	To analyze LUC[5] patterns and predict future growth under rapid tourism development	Quantitative	385 samples	Logistic regression factor analysis
15. (Y. Wang et al., 2022)	T	To study the temporal and spatial evolution characteristics and driving mechanisms of LUC in Thailand.	Review	-	Content analysis

Table 2. (*Continued*).

No. Study	Country	Purpose	Methods	Participant	Analysis
16. (Cattaneo et al., 2018)	C[2]	To regenerate Dongjingyu Village for sustainable tourism through a research by design approach, integrating HLE[6] and LS[7].	Mixed	18 KIs, 20 people in workshops	Interaction between HLE and LS
17. (Gao et al., 2019)	C	To extract spatial patterns of intercity tourist movements from online travel blogs in China.	Quantitative	1,105,928 travel entries of 72,999 users from 259 cities	Statistical analysis
18. (Hu et al., 2023)	C	To investigate the effect of tourism economy on green development efficiency in China.	Mixed	31 provinces	Spatial autocorrelation analysis
19. (Huang et al., 2023)	C	To evaluate the integrity of natural reserves in China.	Qualitative	474 national nature reserves	Fragmentation analysis
20. (King et al., 2024)	C	To explore the impact of city neighborhood branding on new urban tourism.	Quantitative	Tourists in Hong Kong	Independent Sample T-tests
21. (Liu et al., 2021)	C	To evaluate flood inundation risk for urban tourism under different rainfall scenarios.	Qualitative	Shanghai, China	Spatial data analysis
22. (Sun et al., 2020)	C	To analyze spatial-temporal differences and influencing factors of urban tourism development in China.	Qualitative	31 provinces	Spatial-temporal analysis
23. (Tang, 2020)	C	To analyze regional patterns and hierarchical tendencies in urban tourism development.	Quantitative	384 samples	Clustering analysis
24. (Wang et al., 2023)	C	To study the spatio-temporal evolution and influencing factors of urban tourism development.	Qualitative	Urban tourism destinations in China	Spatial-temporal analysis
25. (Wang et al., 2006)	C	To design a sustainable tourism plan for Seagull Island in Guangzhou, China.	Qualitative	Seagull Island, Guangzhou	Content analysis
26. (Wang et al., 2022)	C	To explore the spatial correlation and influencing factors of tourism development.	Quantitative	234 samples	Structural equation modeling
27. (Weng et al., 2022)	C	To investigate how recreation experiences and satisfaction influence revisitation intention in tourist attractions.	Mixed	400 samples, 25 KIs	Structural equation modeling, satisfaction analysis
28. (Xu et al., 2023)	C	To assess the impact of tourism on the urban heat island effect in various cities.	Quantitative	152 samples	Regression analysis
29. (Yang et al., 2022)	C	To analyze the space-time evolution of ecological security in tourism areas and its driving factors.	Quantitative	350 samples	Spatial-temporal analysis
30. (Zhu et al., 2023)	C	To evaluate the ecotourism capabilities of West Lake and propose strategies for sustainable tourism development.	Mixed	500 samples, 20 KIs	Multi-criteria decision-making, content analysis

[1]T = Thailand, [2]C = China, [3]KIs = Key Informants, [4]CBT = Community-based Tourism, [5]LUC = Land Use Change, [6]HLE = Historical Landscape Elements, [7]LS = Landscape Services.

Tables 3 and **4** serve to summarize and compare the main policies, outcomes, and best practices of urban ecotourism development in Thailand and China. These tables provide a concise overview of the key elements identified from the literature review, highlighting the specific approaches and results achieved in each country. **Table 3** focuses on Thailand, detailing how community-based practices, infrastructure improvements, and innovative city management have contributed to the country's urban ecotourism initiatives. **Table 4** highlights China's top-down policy implementation, advanced technological integration, and regional development strategies.

3.1. Urban ecotourism development in Thailand

In recent years, urban ecotourism in Thailand has shown significant development, characterized by diverse approaches and strong community involvement. Social media analysis has revealed critical elements of Thailand's tourism, including urban development and ecotourism, with concerns such as sex tourism, medical tourism, and ecological impacts being prominently highlighted. According to Fu et al. (2023), as noted,

> "Social media reveals critical elements of Thailand's tourism including urban development and ecotourism. Concerns on sex tourism, medical tourism, and ecological impacts were highlighted."

Social media has become a vital tool for real-time insights and policy adjustments, allowing for better targeting of marketing strategies and understanding tourism trends.

Studies indicate that community involvement leads to sustainable outcomes. For example, the design thinking approach in East Bangkok has empowered local communities, aligning with the SDGs. This has resulted in improved well-being and the development of sustainable prototypes. Community involvement leads to sustainable outcomes. Empower local communities, and align with SDGs. Improved well-being, and developed sustainable prototypes (Gozzoli et al., 2022). Community workshops and participatory approaches have proven effective in enhancing community engagement and ensuring sustainable development.

Research has identified significant cultural and historical value in Thai vernacular houses along Western Bangkok canals. Efforts to prioritize the preservation and promotion of cultural heritage have enhanced the potential for cultural tourism and increased community engagement. This is shown in the article, according to Kiatkawsin et al. (2021),

> "Identified that it is significant cultural and historical value in Thai vernacular houses along canals. The preservation and promotion of cultural heritage is very important which can enhance the potential for cultural tourism, and increase community engagement."

Utilizing rapid surveys and GIS for heritage mapping has been instrumental in promoting sustainable tourism development and preserving cultural heritage.

Comparative studies of urban infrastructure in Bangkok, Phnom Penh, and Georgetown have revealed significant differences in infrastructure quality and management efficiency. Bangkok and Georgetown boast first-class infrastructure, enhancing tourism satisfaction and urban image. In contrast, Phnom Penh lags,

highlighting the necessity for developing countries to upgrade urban infrastructure to remain competitive in tourism. According to Jamil and Puad (2010),

> "There are significant differences in infrastructure quality and management efficiency among the cities. Bangkok and Georgetown have the first-class infrastructure, whereas Phnom Penh lags."

The implementation of diverse innovation types (product, process, strategic, social, philosophical, and service) has significantly influenced strategic development in cities like Pattaya. High levels of innovation in service delivery and city administration have led to enhanced strategic development, improved visitor perception, and increased collaboration with various stakeholders. This highlights the importance of infrastructure development, organizational enhancement, and inter-agency collaboration in positioning cities as leading tourist destinations. High level of innovation implementation in various aspects; service innovation had the highest influence on strategic development (Maneethorn et al., 2023).

Studies have underscored the need for sustainable waste management to mitigate environmental impacts such as microplastic pollution. Regular monitoring, public awareness, and strict plastic waste regulations have been recommended to address these issues. Additionally, green logistics in urban tourism activities, particularly in the Eastern Economic Corridor, have been identified as crucial for enhancing environmental management and promoting sustainable practices. According to Prarat et al. (2020) as noted,

> "High microplastic levels, mostly from land-based sources like tourism and sewage. Implement policies to monitor and control plastic waste, targeting tourism and urban areas."
>
> "Five major factors identified: implementation of the green transportation system, level of the environmental management system, enhancement of reverse logistics, level of government governance, and perceived usefulness of green logistics for enterprises."

Research on LUC and future growth predictions under rapid tourism development in coastal tourist cities like Koh Chang emphasize the need for systematic resource planning and infrastructure development. The incorporation of conservation area boundaries into planning models is essential for balancing tourism development with environmental preservation. Tools like the Dyna-CLUE model and geo-informatics have been effectively used to assess potential future LUCs and plan for sustainable growth. Predicted future growth of narrow coastal areas, and assessed environmental impacts of infrastructure development in parallel with resource conservation, and decision support system for evaluating different planning options (Tananonchai, 2022).

The challenges of urban ecotourism development in Thailand also include the need for effective waste management and environmental protection strategies. As a major tourist destination, Phuket faces significant waste management issues, leading to environmental degradation (Vithayaporn et al., 2023). Addressing these issues requires systematic resource planning and infrastructure development, as well as incorporating conservation area boundaries into urban planning models. Another challenge is the policy implementation gap. Despite having good national policies, the implementation effectiveness varies due to differences in resources and capacities of

local governments (Busbarat et al., 2021).

Table 3. The main policies, outcomes, and best practices of urban ecotourism development in Thailand.

No.	Main Policy	Main Outcomes	Best Practices
1	Recommendations for city managers and policymakers to control vandalism.	Identification of differences and similarities in stakeholder attitudes.	Emphasizing the role of community involvement and stakeholder cooperation in managing vandalism.
2	Tourism policies focusing on sustainable tourism development and social media engagement.	Enhanced understanding of tourism trends, better targeting of marketing strategies.	Using social media data for real-time insights and policy adjustments
3	Empower local communities, align with SDGs	Improved well-being, developed sustainable prototypes.	Community workshops
4	Implementing standardized urban infrastructure guidelines, improving urban management systems.	Enhanced tourism satisfaction and urban image in cities with better infrastructure.	Integration of comprehensive urban planning, efficient management practices.
5	Prioritize preservation and promotion of cultural heritage.	Enhanced potential for cultural tourism, increased community engagement.	Utilizing rapid surveys and GIS for heritage mapping.
6	Policies designed at central government level but implemented locally.	Development of urban areas with a focus on sustainability, integration of stakeholder participation.	Combining top-down and bottom-up approaches for urban tourism planning; focus on sustainable urban management.
7	Emphasis on infrastructure development, enhancing organizational potential, and promoting integrative development with relevant agencies.	Enhanced strategic development, improved visitor perception, and increased collaboration with various stakeholders.	Use of diverse innovation types (product, process, strategic, social, philosophical, service) to enhance tourism experience and city management.
8	Implement policies to monitor and control plastic waste, targeting tourism and urban areas.	Enhanced understanding of microplastic pollution sources and characteristics.	Regular monitoring, public awareness, strict plastic waste regulations.
9	Support for CBT by Thai government to promote and enhance communities in all regions.	Enhanced negotiation power, increased sustainable tourism alliances, and diversified tourism services in the areas.	Studying internal community contexts, promoting associations and networks, developing activities, enhancing information systems, summarizing lessons learned.
10	Municipal laws regulating building construction and modifications to preserve cultural heritage.	Enhanced understanding and strategies for preserving and developing urban heritage sites.	Incorporating local and historical contexts into urban planning to maintain cultural identity.
11	Encourage public transport use among tourists to alleviate traffic congestion.	Comprehensive insights into tourist behaviors for city management and planning.	Utilize social media data for real-time tourism management.
12	Implementation of green transportation systems, green policies for environmental management, and enhancement of reverse logistics.	Identified key factors influencing green logistics performance, highlighting the roles of government and enterprises in initiating green logistics.	Encouragement of green transportation systems, reusing, reducing, recycling initiatives, and systematic environmental management.
13	Incorporation of conservation area boundaries into the model for forest preservation alongside tourism development.	Insights into potential land use changes under multiple scenarios.	Systematic resource planning and infrastructure development to mitigate environmental impact.
14	Decision support system for evaluating different planning options.	Potential future LUCs for planning under rapid tourism development.	Use of Dyna-CLUE model and geo-informatics to show potential future LUCs, assess environmental impacts, plan for LUC.
15	Provides basis and decision support for future land planning and management in Thailand.	Emphasizes the need for balancing economic development with sustainable land use and conservation.	Combining forest conservation with tourism, such as national parks, and integrating local cultural and religious contexts for forest protection.

In summary, Thailand's urban ecotourism development is characterized by a strong focus on community involvement, the strategic use of social media, cultural

heritage preservation, infrastructure improvements, innovation in city management, and sustainable environmental practices. These elements collectively contribute to the holistic growth and sustainability of urban ecotourism in Thailand. As shown in **Table 3**.

3.2. Urban ecotourism development in China

Urban ecotourism in China represents a dynamic and evolving sector, shaped by a series of forward-thinking policies, significant outcomes, and innovative best practices. China's urban ecotourism policies are multifaceted, focusing on sustainable development, ecological protection, and regional cooperation. Inclusive tourism policies integrate landscape regeneration and community development, ensuring that tourism benefits local communities while preserving cultural and historical identities. According to Cattaneo et al. (2018), as noted:

> "The regeneration of abandoned villages by integrating tourism with local development initiatives fosters a symbiotic relationship between tourism and community welfare."

Similarly, green development policies promote the adoption of eco-friendly practices and green technologies within the tourism sector, enhancing urban sustainability (Hu et al., 2023). This includes establishing tourism innovation chains and promoting regional cooperation and innovation spillover mechanisms essential for sustainable development.

Neighborhood branding strategies play a crucial role in promoting urban tourism. Effective branding can transform urban neighborhoods into vibrant tourist destinations, fostering economic growth and social cohesion (King et al., 2024). Policies focus on utilizing participatory design processes, integrating cultural and historical elements into branding strategies, and ensuring that tourism development benefits local communities. Additionally, spatial planning and policy adjustments address regional disparities through the use of spatial econometric models and GIS tools, ensuring equitable growth and development in different regions (Wang et al., 2023).

The implementation of these policies has led to several notable outcomes. Enhanced ecological protection is one such outcome, as reported by Huang et al. (2023), who highlight significant improvements in the integrity of natural ecosystems within urban areas due to measures such as ecological restoration projects and green industry transformation, as noted:

> "National parks in China play a dominant role in the system of natural protected areas, and their primary function is to ensure that the authenticity and integrity of important natural ecosystems are effectively protected."

These efforts have mitigated the negative impacts of anthropogenic activities on natural reserves, ensuring sustainable urban development. Balanced regional development is another key outcome. Gao et al. (2019) identify spatial patterns and influential factors of intercity tourist mobility in China, highlighting regional disparities and guiding targeted interventions to promote balanced intercity tourism, as noted:

> "By distinguishing tourist sinks and sources, it is found that tourists from similar cities usually have similar tourism choices … Specifically, distance is essential

in determining tourist movements. Intercity travel flows decline with distance under a negative power-law distribution."

Increased visitor satisfaction has been demonstrated by Weng et al. (2022), who found a significant relationship between recreation experiences, satisfaction, and revisitation intentions. Improved infrastructure and service quality at tourist attractions have strengthened visitor satisfaction, encouraging repeat visits and fostering a positive tourism experience. Moreover, advancements in flood risk assessment methods using spatial techniques, as highlighted by Liu et al. (2021), have enhanced flood risk management policies, ensuring better protection for urban tourism areas from climate extremes.

Several best practices have emerged from these outcomes. Participatory design approaches involve local communities and stakeholders in the tourism planning process, ensuring that development aligns with local needs and preserves cultural heritage (Cattaneo et al., 2018). This participatory approach fosters a sense of ownership and responsibility among community members, enhancing the sustainability of tourism initiatives. Advanced spatial analysis techniques utilizing big data, spatial econometrics, and GIS for informed tourism planning and management address both regional disparities and environmental impacts (Gao et al., 2019; Wang et al., 2023). These techniques provide detailed insights into tourism patterns and trends, enabling data-driven decision-making.

Green technology adoption, such as implementing new energy-saving technologies in the tourism sector, helps mitigate environmental impacts like the urban heat island effect (Xu et al., 2023). This includes adopting energy-efficient systems in hotels and other tourism facilities, reducing the sector's carbon footprint. Comprehensive ecological security assessments using GIS tools guide sustainable tourism development (Yang et al., 2022). These assessments evaluate the ecological impacts of tourism activities, providing a basis for implementing mitigation measures and promoting environmental sustainability.

China's approach to urban ecotourism is characterized by several unique aspects. One is the integration of ecological sustainability with economic development. Strategies balance tourism growth with environmental protection, ensuring that economic benefits do not come at the expense of ecological health (Wang et al., 2023; Zhu et al., 2023). Another unique aspect is the focus on addressing spatial and regional disparities in tourism development. Advanced spatial analysis techniques are used to identify and address these disparities, promoting equitable growth across different regions (Sun et al., 2020; Tang, 2020).

Technological integration is another distinctive feature of China's urban ecotourism. Extensive use of technology, including GIS and remote sensing, monitors and manages the impacts of tourism, ensuring data-driven decision-making processes (Liu et al., 2021; Xu et al., 2023). Policies also emphasize the importance of community involvement in tourism development. By engaging local communities in the planning and implementation processes, China ensures that tourism initiatives are sustainable and beneficial to residents (Cattaneo et al., 2018).

The use of neighborhood branding as a tool for urban regeneration and tourism promotion is a further distinctive aspect. This strategy enhances the appeal of urban areas as tourist destinations, fostering economic growth and social cohesion (King et

al., 2024). China's urban ecotourism development model is comprehensive, integrating sustainable practices, technological advancements, and community involvement. These unique aspects provide a robust for the urban ecotourism development. As shown in **Table 4**.

Table 4. The main policies, outcomes, and best practices of urban ecotourism development in China.

No.	Main Policy	Main Outcomes	Best Practices
16	Adopt inclusive tourism policies that integrate landscape regeneration and community development.	Regeneration of abandoned villages should integrate tourism with local community development.	Use participatory design approaches involving local communities and stakeholders.
17	Develop policies to enhance intercity tourist mobility and connectivity.	Identified spatial patterns and influential factors of intercity tourist mobility in China, highlighting regional disparities.	Implement advanced spatial analysis and big data techniques for tourism planning.
18	Promote green development policies in tourism.	Found a positive relationship between tourism development and green urban development.	Encourage eco-friendly practices and green technologies in the tourism industry.
19	Strengthen ecological protection policies in national parks.	Quantified the impacts of anthropogenic activities on natural ecosystem integrity in Shennongjia National Park.	Implement ecological restoration projects and green industry transformation.
20	Develop neighborhood branding policies to promote urban tourism.	Neighborhood branding significantly affects new urban tourism patterns.	Use branding as a tool for urban regeneration and tourism promotion.
21	Enhance flood risk management policies using spatial analysis.	Improved flood risk assessment methods using spatial techniques.	Incorporate spatially explicit models in urban planning for flood mitigation.
22	Promote balanced urban tourism development across regions by addressing spatial-temporal disparities.	Analyzed spatial-temporal differences and influencing factors of urban tourism development in China.	Apply spatial econometric models and panel data analysis to understand and address regional disparities in tourism development.
23	Foster regional cooperation in urban tourism development to enhance sustainability.	Analyzed regional patterns and hierarchical tendencies in urban tourism development.	Use hierarchical clustering and spatial analysis to guide collaborative tourism strategies.
24	Promote sustainable urban design and tourism planning.	Highlighted the trade-offs between tourism development and environmental sustainability.	Use comprehensive planning tools for sustainable tourism development.
25	Support sustainable urban tourism development through tailored strategies addressing spatio-temporal evolution factors.	Studied the spatio-temporal evolution and influencing factors of urban tourism development.	Employ spatial-temporal analysis and econometric models to develop sustainable tourism strategies.
26	Implement spatial planning and policy adjustments to promote balanced tourism development across regions.	Identified spatial disparities and key influencing factors in tourism development.	Utilize spatial econometric models and GIS tools to analyze and address regional disparities in tourism.
27	Enhance policies on urban forest recreation and its impacts.	Explored the influence of recreation experiences on environmental responsibility behaviors.	Promote urban forest recreation as a tool for enhancing environmental awareness.
28	Encourage energy-saving policies in the hotel industry to reduce UHI effects.	Identified the hotel industry as a major contributor to urban heat island effects.	Adopt new energy-saving technologies in the tourism sector.
29	Strengthen ecological security policies in urban tourism.	Analyzed space-time evolution of ecological security in urban tourism.	Use GIS tools to assess and improve regional tourism ecological security.
30	Promote policies for enhancing ecotourism capabilities.	Investigated West Lake's ecotourism capabilities and influencing factors.	Develop strategies to balance tourism development and ecological conservation.

3.3. Comparative and cooperation between Thailand and China's urban ecotourism development

Urban ecotourism development in Thailand and China presents unique approaches shaped by their respective socio-economic contexts, policy frameworks,

and environmental challenges. Both countries have recognized the potential of urban ecotourism as a tool for sustainable development, yet their strategies and implementations reveal distinct differences and opportunities for mutual learning and cooperation.

3.3.1. Comparative between Thailand and China's urban ecotourism development

Thailand's approach to urban ecotourism is grassroots-oriented, emphasizing community-based practices and stakeholder involvement. Thailand's policies focus on empowering local communities and aligning tourism initiatives with sustainable development goals. This approach is exemplified in projects that prioritize the preservation and promotion of cultural heritage and involve community workshops and participatory design processes to ensure that tourism benefits local residents. Thailand's use of social media for real-time insights and policy adjustments also showcases its adaptive and inclusive policy framework.

In contrast, China's urban ecotourism policies are characterized by a strong top-down approach, where the central government plays a significant role in steering urban development and implementing large-scale environmental and tourism initiatives. Policies such as those promoting green development, neighborhood branding, and spatial planning are often designed at the national level and implemented locally. For instance, China's emphasis on integrating ecological sustainability with economic development is evident in its green development policies that encourage eco-friendly practices and green technologies within the tourism sector. The use of advanced spatial analysis techniques and GIS tools to address regional disparities further highlights the structured approach adopted by China.

The outcomes of these policy approaches highlight both successes and areas for improvement. Thailand has seen substantial benefits from its community-based approach. Enhanced community engagement and sustainable tourism practices have been key outcomes of Thailand's focus on local involvement. The preservation of cultural heritage sites and the promotion of cultural tourism have also been significant achievements. Furthermore, the implementation of innovative practices in city management and tourism planning has positioned Thai cities like Pattaya as leading tourist destinations. China's top-down approach has led to significant advancements in ecological protection, such as the restoration of natural ecosystems and the implementation of green industry transformation projects. Enhanced visitor satisfaction due to improved infrastructure and service quality at tourist attractions is another positive outcome. Additionally, the adoption of new energy-saving technologies in the tourism sector has helped mitigate environmental impacts like the urban heat island effect.

3.3.2. Cooperation between Thailand and China's urban ecotourism development

Both Thailand and China face challenges that present opportunities for cooperation. Thailand's challenges are related to the need for more comprehensive infrastructure improvements and the effective implementation of sustainable waste management practices. For example, Phuket and Pattaya struggle with waste management due to the high influx of tourists (Maneethorn et al., 2023). The country

also faces issues related to balancing tourism development with environmental preservation, particularly in coastal and heavily touristed areas, like the Phi Phi Islands, where coral reef degradation and coastal erosion are significant concerns (Somnuek, 2010). In China, the main challenges include managing the rapid pace of urbanization and addressing the environmental impacts of large-scale tourism projects. The rapid development in cities like Beijing and Shanghai has led to significant air and water pollution, which impacts both residents and tourism (Zhong et al., 2024). Additionally, there is a need to enhance community involvement in tourism planning to ensure that residents benefit from tourism development. For instance, in rural areas like Zhangjiajie, local communities often feel excluded from decision-making processes related to tourism projects, leading to social and economic disparities (Wen et al., 2024).

There are several areas where Thailand and China can learn from each other. Thailand's emphasis on community involvement and stakeholder engagement can serve as a model for China to enhance local participation in tourism planning and ensure that tourism initiatives are inclusive and sustainable. Conversely, China's structured approach to policy implementation and use of advanced technologies can provide valuable insights for Thailand in terms of improving infrastructure and addressing regional disparities.

Both countries could benefit from joint initiatives and research projects focused on sustainable urban ecotourism development. Collaborative efforts could include the exchange of best practices, joint training programs for urban planners and tourism managers, and the development of integrated tourism strategies that combine Thailand's community-based approaches with China's technological strengths.

3.4. Sustainable framework for urban ecotourism development

Based on the analysis and findings, the following framework is proposed for sustainable urban ecotourism development. This framework for sustainable urban ecotourism policy development integrates key elements from both Thailand's and China's approaches, emphasizing ecological and cultural preservation, inclusive and participatory policy development, advanced technological integration, regional cooperation, sustainable waste management, and capacity building. It mandates the creation of protected areas, stakeholder engagement, public consultations, the adoption of smart tourism systems, and continuous environmental monitoring. Additionally, it promotes regional planning, collaborative frameworks, waste reduction initiatives, and public education campaigns. Financial incentives and training programs support the implementation of eco-friendly technologies and practices, fostering sustainable urban ecotourism that balances economic growth with environmental and social well-being. It is shown in **Figure 2**.

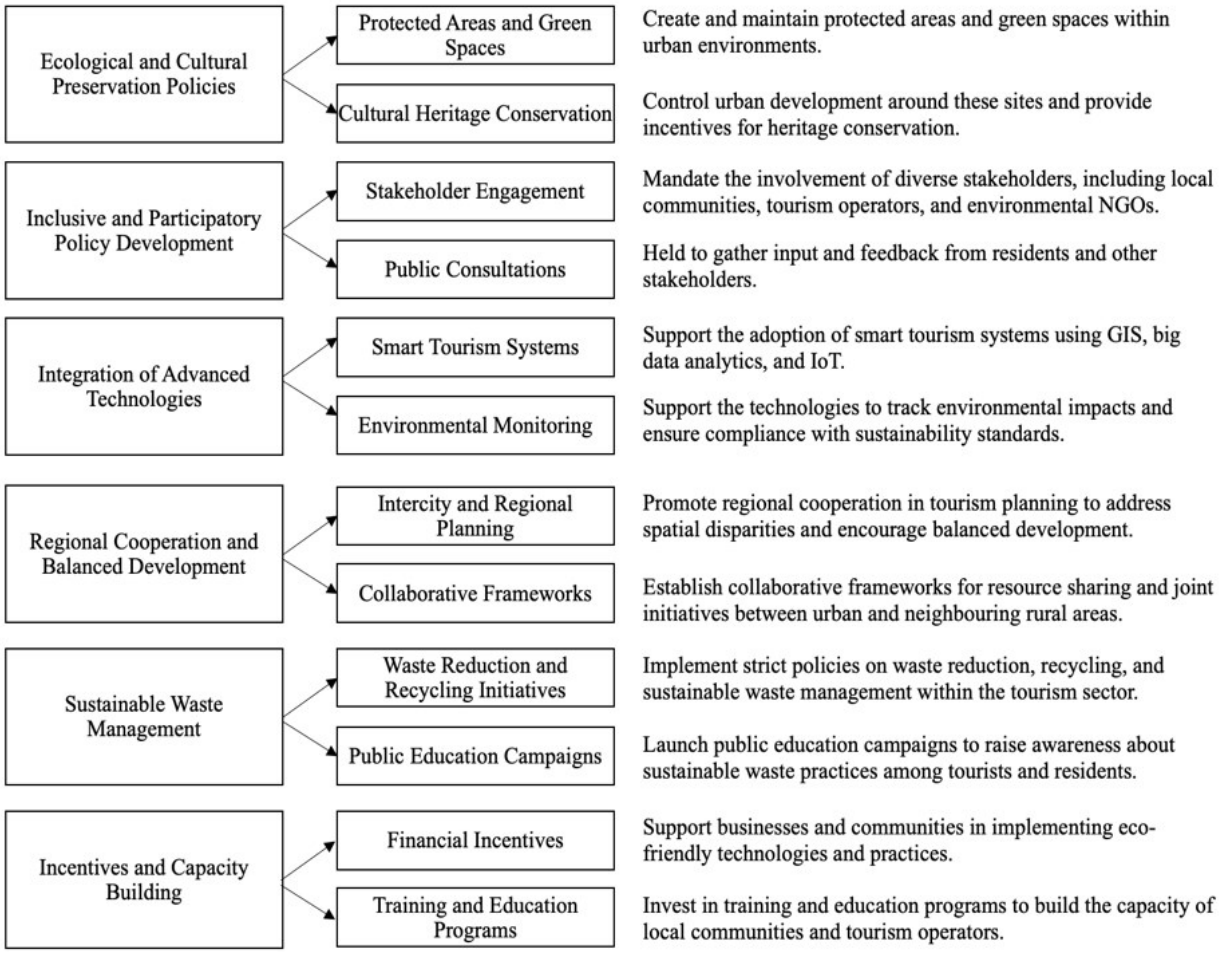

Figure 2. Sustainable framework for urban ecotourism development.

The recommendations for policymakers and urban planners are:

- Create and maintain protected areas and green spaces within urban environments;
- Control urban development around these sites and provide incentives for heritage conservation;
- Mandate the involvement of diverse stakeholders, including local communities, tourism operators, and environmental NGOs;
- Held to gather input and feedback from residents and other stakeholders;
- Support the adoption of smart tourism systems using GIS, big data analytics, and IoT;
- Support the technologies to track environmental impacts and ensure compliance with sustainability standards;
- Promote regional cooperation in tourism planning to address spatial disparities and encourage balanced development.;
- Establish collaborative frameworks for resource sharing and joint initiatives between urban and neighboring rural areas;
- Implement strict policies on waste reduction, recycling, and sustainable waste management within the tourism sector;
- Launch public education campaigns to raise awareness about sustainable waste practices among tourists and residents;

- Support businesses and communities in implementing eco-friendly technologies and practices;
- Invest in training and education programs to build the capacity of local communities and tourism operators.

The proposed framework and recommendations for sustainable urban ecotourism development integrate key elements from both Thailand's and China's approaches. It emphasizes ecological and cultural preservation, inclusive and participatory policy development, advanced technological integration, regional cooperation, sustainable waste management, and capacity building. This holistic approach mandates the creation of protected areas, stakeholder engagement, public consultations, the adoption of smart tourism systems, and continuous environmental monitoring. Additionally, it promotes regional planning, collaborative frameworks, waste reduction initiatives, and public education campaigns. Financial incentives and training programs support the implementation of eco-friendly technologies and practices, fostering sustainable urban ecotourism that balances economic growth with environmental and social well-being.

In conclusion, the synergy between Thailand's grassroots involvement and China's structured policy implementation offers a robust framework for promoting sustainable urban ecotourism. By combining community engagement with advanced planning and technological tools, urban ecotourism can be effectively developed, contributing to the sustainable development goals of urban areas worldwide. This framework provides actionable insights for policymakers, urban planners, and ecotourism practitioners aiming to harness the potential of ecotourism as a tool for sustainable urban development.

4. Discussion

The findings of this study provide valuable insights into the sustainable development of urban ecotourism in Thailand and China, highlighting the unique approaches, successes, and challenges faced by both countries. This discussion interprets the results in light of previous studies and working hypotheses, offering implications for the broader context of urban ecotourism and suggesting future research directions.

Both Thailand and China have achieved significant outcomes through their respective urban ecotourism policies. Thailand's focus on preserving cultural heritage and promoting cultural tourism has enhanced community engagement and tourist satisfaction. The innovative use of social media for real-time insights and policy adjustments further illustrates the adaptive nature of Thailand's approach. Best practices in Thailand include community workshops, participatory design processes, and the strategic use of social media data to inform policy decisions.

China's successes include enhanced ecological protection through restoration projects and green industry transformation, improved visitor satisfaction due to better infrastructure and service quality, and advancements in flood risk management policies. Best practices in China involve participatory design approaches, advanced spatial analysis techniques, and the adoption of green technologies in the tourism

sector. These practices align with the broader goals of sustainable urban development, balancing tourism growth with environmental protection and community well-being.

Despite the successes, both countries face challenges that present opportunities for mutual learning and cooperation. Thailand's challenges include the need for comprehensive infrastructure improvements and effective waste management practices, particularly in coastal and heavily touristed areas. Addressing these issues requires systematic resource planning and infrastructure development, as well as the integration of conservation area boundaries into urban planning models. China's challenges involve managing the rapid pace of urbanization and ensuring that local communities benefit from tourism development. Enhancing community involvement in tourism planning is essential to address these challenges and ensure the sustainability of tourism initiatives. Cooperation between Thailand and China can facilitate the exchange of best practices, joint training programs for urban planners and tourism managers, and the development of integrated tourism strategies that combine Thailand's community-based approaches with China's technological strengths.

5. Conclusions

This study presents a comprehensive analysis of urban ecotourism development in Thailand and China, emphasizing the importance of integrating ecotourism into urban planning to achieve sustainable development goals. The findings reveal distinct approaches in each country, with Thailand focusing on community-based practices and stakeholder involvement, and China adopting a top-down policy-driven strategy. Both approachs offer valuable lessons for sustainable urban ecotourism development.

Thailand's emphasis on community involvement has led to increased local engagement and satisfaction. The focus on preserving cultural heritage and promoting cultural tourism has resulted in sustainable practices that benefit both residents and visitors. Best practices include community workshops, participatory design processes, and the strategic use of social media for real-time policy adjustments.

China's development strategy incorporates advanced technologies and ecological restoration, leading to improved infrastructure and visitor satisfaction. Policies promoting green technologies, participatory design approaches, and spatial analysis techniques have successfully enhanced ecological protection and balanced regional development.

A holistic framework for sustainable urban ecotourism development is proposed, integrating elements from both Thailand's and China's approaches. Key recommendations include creating and maintaining protected areas, prioritizing cultural heritage preservation, involving diverse stakeholders in planning processes, adopting smart tourism systems, promoting regional cooperation, implementing sustainable waste management policies, and investing in capacity building and eco-friendly technologies.

Future research should evaluate the long-term impacts of urban ecotourism policies in both countries, focusing on environmental sustainability, community well-being, and economic development. Comparative studies involving other countries with different socio-economic contexts can provide additional insights into effective urban ecotourism strategies. Exploring the role of emerging technologies in enhancing

urban ecotourism planning and management offers new avenues for sustainable development.

In conclusion, the synergy between Thailand's grassroots involvement and China's structured policy implementation provides a robust framework for promoting sustainable urban ecotourism. Combining community engagement with advanced planning and technological tools can effectively develop urban ecotourism, contributing to the sustainable development goals of urban areas worldwide. This framework offers actionable insights for policymakers, urban planners, and ecotourism practitioners aiming to leverage ecotourism as a tool for sustainable urban development.

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