Evaluation and Enhancement of Community-Based Green Tourism Potential in Koh Phayam for Sustainable, Ranong Province, Thailand

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Abstract

The objective of this research was to evaluate and enhance the readiness management of community-based tourism's green potential in Koh Phayam, Ranong Province, Thailand, toward sustainable tourism. The study employed a mixed-methods approach, collecting quantitative data from a sample of 296 residents in the Koh Phayam community and qualitative data from in-depth interviews with government representatives and focus group discussions with private sector entrepreneurs. The assessment of the level of readiness across the 10 aspects of green potential revealed varied performance.

The highest overall readiness was observed in the top three aspects, categorized as "Highest": Caring for Nature (□= 4.56), Management and Information (□= 4.48), and Caring for Culture (□= 4.44), which demonstrates the community's strength in conservation and knowledge dissemination. Conversely, aspects falling into the "Moderate" category included Caring for Climate (□= 2.73), Caring for Water (□= 3.04), and Good Employment (□= 3.17). The dimension with the lowest overall readiness was Food & Products (□= 2.50), categorized as "Lowest". A closer examination of the sub-items highlighted significant gaps in financial commitment and stringent standards, particularly in offsetting at least 10% of annual carbon emissions (□= 1.10), investing at least 10% of revenue in community sustainability projects (□= 1.75), and offering at least 80% organic food (□= 1.71).

These findings suggest that despite high readiness in conservation and communication, major gaps exist in formalizing policy, financially investing in green initiatives, and adopting strict environmental practices. The results are intended to serve as sustainable management guidelines for achieving a balance between income generation and the conservation of natural and cultural resources in Koh Phayam, Ranong Province, Thailand.

Keywords: Evaluation, Enhancement, Community-Based Tourism, Green Tourism, Sustainable

1. Introduction

Tourism has long been one of Thailand's key economic drivers, characterized by its diverse natural resources and rich cultural heritage. However, the development of conventional tourism often leads to negative environmental and socio-cultural impacts on local communities. This reality has brought the concept of Sustainable Tourism to the forefront, making it a critical national agenda, especially in the post-COVID-19 era (Rungchavalnont, 2022).

Within this context, Community-Based Tourism (CBT) is recognized as a sustainable model. It emphasizes the management of tourism resources by local people, the equitable sharing of benefits, and the empowerment of the community (Chaiyakot et al., 2023). CBT is considered a vital mechanism for driving sustainable development by focusing on strengthening community resilience and sustainable natural resource management (Rungchavalnont, 2022). The role of CBT is particularly prominent in promoting "Green Potential," which refers to the capacity of tourism activities to conserve the environment, minimize negative impacts, and utilize resources efficiently (Phumdara, Piriyatthana, & Boonying, 2023).

Koh Phayam, Ranong Province, is identified as an area with high potential for sustainable ecotourism development, owing to its natural beauty, including white-sand beaches, clear waters, and abundant ecosystems. The local community has begun to recognize the importance of managing tourism to conserve local resources under the concept of Green Tourism. Nevertheless, the current lack of integrated and clear coordination remains an obstacle to genuine conservation efforts (Phumdara, Piriyatthana, & Boonying, 2023).

Consequently, this research aims to investigate the Evaluation and Enhancement of Community-Based Green Tourism Potential in Koh Phayam for Sustainable, Ranong Province, Thailand. The findings are intended to serve as a sustainable management guideline that will help achieve a balance between income generation and the conservation of Koh Phayam's natural and cultural resources.

Research Objective

1) To evaluate the level of readiness for developing the green potential of community-based tourism in Koh Phayam toward sustainable tourism, Ranong Province.

2) To enhance the green potential of community-based tourism management in Koh Phayam toward sustainable tourism, Ranong Province.

2. Literature review

Concepts and Theories Related to Sustainable Community-Based Tourism

Sustainable Community-Based Tourism (CBT) management necessitates achieving a balance across three core dimensions: social, economic, and cultural (Waleerak Sitisom et al., 2020). Fundamentally, CBT principles prioritize robust community participation in all phases (planning, management, operations, and evaluation), ensuring the equitable distribution of benefits, and promoting environmental and cultural sustainability to enhance local quality of life and pride (Nattaphat Maneerote, 2017).

Concurrently, Thailand is elevating its tourism standards internationally under the Thailand Green Plan 2030 by implementing the "Green Scan" self-assessment tool, which is a crucial step toward achieving the internationally benchmarked "Thailand Good Travel" certification, a standard developed in partnership with Green Destinations under the "Good Travel Seal" framework. This robust assessment is based on 27 comprehensive criteria across 10 core sustainability dimensions. These dimensions systematically evaluate sustainable practice, covering Management & Information, Caring for People, Good Employment, Caring for Climate, Reducing Waste, Caring for Water, Reducing Pollution, Food & Products, Caring for Culture, and Caring for Nature. (Mahidol University STAC & DOT, n.d.)

3. Methodology

This research employs a Mixed Methods Research design:

1) Quantitative Research

The population for the quantitative study consists of 1,286 residents of Koh Phayam Community, Ranong Province, Thailand (Information from Ranong Provincial Registration Office 2025). Data will be collected from a sample drawn from this population.

Data collection will be conducted using a questionnaire. Non-probability sampling was employed, specifically using accidental sampling. As the exact population size, the sample size was calculated using Weiers's formula for estimating the population mean (Weiers, 2005). A confidence level of 95% was set, with an allowable error of 1/10 (0.1) of the population's standard deviation. This calculation yielded a final sample size of 296 respondents.

2) Qualitative Research

The qualitative phase of this study utilized a purposive sampling strategy to gather specialized knowledge and expert opinions from key stakeholders. This data was collected using two primary methods. In-depth interviews were conducted with the Government Sector representatives, including one person each from the Koh Phayam Sub-district Administrative Organization (SAO), the Ranong Provincial Tourism and Sports Office, and the Department of Marine and Coastal Resources.

Separately, focus groups were employed to collect data from the Private Sector participants, who comprised fifteen (15) coastal fishing entrepreneurs, twenty (20) accommodation and hotel operators, and eight (8) tourism business operators on Koh Phayam.

For the purpose of collecting data information regarding current community-based tourism management and the existing operational contexts specifically related to tourism and resource management within the Koh Phayam community.

4. Results

Part I: Quantitative Evaluation of the Community's Readiness and Green Potential for Sustainable Tourism in Koh Phayam

This summary provides an academic translation of the overall level of readiness for developing the green potential of community-based tourism, along with a detailed breakdown of the overall readiness level for each of the ten dimensions and the ranking of the highest and lowest-scoring topics within each dimension, based on the provided analysis.

Dimension 1: Management and Information

The overall level of readiness in this dimension is classified as **Highest** (□=4.48). The topic with the highest average readiness score is "Do you provide information to customers about local natural and cultural resources?" (□=4.65). The topic follows this: "Do you discuss or build understanding about sustainability with customers?" (□=4.59). Conversely, the lowest average score is observed in the topic, "Have you clearly defined a policy or guidelines to promote sustainability in the business?" (□=4.21).

Dimension 2: Caring for People

The overall level of readiness for this dimension is categorized as **High** (□=3.87). The highest average readiness score is reported for the topic, "Do you have measures to reduce environmental impacts that may affect local community resources (e.g., water, electricity, or waste)?" (□=4.65). The next highest score is shared by two topics (□=4.64): "Do you regularly support or organize activities for continuous and sustainable community development (at least 3 times a year)?" and "Do you support local entrepreneurs in developing and marketing sustainable products or services?". The lowest average score is found in the topic, "Have you invested at least 10% of revenue in projects for the sustainability of the community or locality?" (□=1.75).

Dimension 3: Good Employment

The overall readiness level in this dimension is **Moderate** (□=3.17). The highest average readiness is seen in the topic, "Do you provide equal opportunities for everyone to access employment without discrimination in any aspect?" (□=3.45). This is followed by, "Do you have a policy regarding the protection of labor rights and employee benefits, including fair employment and compliance with human rights principles (including compliance with both domestic and international labor laws)?" (□=3.40). The topic with the lowest average score is, "Do you have a system for protecting labor rights and providing employee welfare according to standard or exceeding legal requirements?" (□=2.65).

Dimension 4: Caring for Climate

The overall readiness for this dimension is at a **Moderate** level (□=2.73). The topic with the highest average score is, "Do you have operational guidelines that are climate-friendly?" (□=4.68). Following this is the topic, "Do you use equipment or methods that help reduce energy consumption (e.g., LED bulbs, energy-saving equipment, automatic lighting systems, etc.)?" (□=4.65). The lowest average score is recorded for the topic, "Do you offset at least 10% of annual carbon emissions by purchasing certified carbon credits?" (□=1.10).

Dimension 5: Reducing Waste

The overall readiness level is classified as **High** (□=3.80). The highest average score is observed in the topic, "Have you implemented or participated in other recycling activities beyond basic waste separation?" (□=4.68). The next highest score is for the topic, "Do you have management measures to reuse or recycle waste when reduction is not possible?" (□=4.65). The topic with the lowest average score is, "Do you have a policy not to use single-use plastic stirrers?" (□=1.77).

Dimension 6: Caring for Water

The overall readiness for this dimension is **Moderate** (□=3.04)**.** The highest average readiness score belongs to the topic, "Do you encourage customers to inform you when towels and bed linens need changing?" (□=3.32). The second highest is, "Do you offer customers the option to decline housekeeping services during their stay?" (□=3.30). The lowest average score is for the topic, "Do you have effective measures to reduce water consumption and prevent water-related impacts?" (□=2.75).

Dimension 7: Reducing Pollution

The overall readiness level is **Moderate** (□=3.05). The highest average score is reported for the topic, "Do you implement any measures to reduce or prevent pollution, such as air, water, noise, or waste pollution?" (□=3.30). This is followed by, "Does your business reduce the use of hazardous substances (e.g., pesticides) by using safer products and storing them securely?" (□=3.21). The lowest average score is found in the topic, "Do you have measures to reduce and prevent impacts from air pollution?" (□=2.78).

Dimension 8: Food & Products

The overall level of readiness in this dimension is the **Lowest** (□=2.50). The highest average readiness score is for the topic, "Is at least 80% of food sourced from the accommodation's local area (e.g., within 50 km of the accommodation's location)?" (□=4.09). The next highest score is for "Does the tourism community offer special dietary options upon request?" (□=3.32). The lowest average score is for the topic, "Does the tourism community offer at least 80% organic food?" (□=1.71).

Dimension 9: Caring for Nature

The overall level of readiness is classified as **Highest** (□=4.56). The highest average score is for the topic, "Do you support and participate in biodiversity conservation (both on-site and through online channels, such as information dissemination or participation in environmental activities)?" (□=4.68). This is followed by, "In the past 5 years, has your tourism community avoided actions that severely impact local heritage for commercial development?" (□=4.64). The lowest average score is for the topic, "Do you have guidelines to support or implement measures to protect wildlife from illegal hunting, capture, or trade?**"** (□=4.60).

Dimension 10: Caring for Culture

The overall readiness level is **Highest** (□=4.44). The highest average score is for the topic, "Do you support and participate in the protection, conservation, and promotion of local sites, traditions, and culture?" (□=4.49). The lowest average score is found in the topic, "Do you have conservation activities for cultural values, including tangible and intangible elements such as folk art, local language, traditional performances, and decorating the accommodation with cultural colors, patterns, and styles?" (□=4.38).

Part II: Qualitative Enhancement of the Green Potential of Community-Based Tourism Management in Koh Phayam toward Sustainable Tourism

1. **Community-Based Tourism Management:** Formalized CBT Committee governance and strategic inter-organizational collaboration drive planning, supported by functional stakeholder participation mechanisms.

2. **Promoting Quality of Life and Participation:** Annual sustainability programs, provision of accessible facilities ("Tourism for All" standard), and support for local employment enhance overall community well-being.

3. **Fair Employment and Empowerment in the Community:** Strict non-discrimination policies and fair labor practices are enforced, complemented by partnerships that generate vocational training and income for vulnerable groups (e.g., Moken).

4. **Climate Awareness:** Systematic energy management utilizes solar power, passive design, and efficient technology, actively integrating low-carbon tourism and BCG model principles for climate adaptation and mitigation.

5. **Waste Reduction:** Mandatory protocols eliminate single-use plastics and reduce food waste, promoting the use of biodegradable packaging and community-led upcycling/reuse initiatives.

6. **Caring for Water:** Water efficiency is achieved via conservation devices, rainwater harvesting, and continuous maintenance of wastewater treatment systems (e.g., grease traps).

7. **Reducing Pollution:** Noise is controlled through community communication and established zoning, while GHG reduction is targeted via low-carbon recreation (e.g., kayaking, coral planting).

8. **Promoting the Basic Economy and Supply Chain Sustainability:** Local procurement is prioritized to support grassroots entrepreneurs, with supply chains adhering to fair trade and eco-friendly standards (e.g., local organic produce).

9. **Sustainable Conservation of Biodiversity and Natural Resources:** Active protection of native habitats is enforced, with clear animal welfare standards and community participation in restoration/environmental protection activities.

10. **Conservation and Promotion of Community Cultural Heritage:** Local culture is actively preserved through traditional festivals and workshops, supported by a tourist Code of Conduct and the use of sustainable materials in cultural event management.

5. Conclusion

The analysis of the overall mean readiness scores for the 10 aspects of developing the green potential of community-based tourism (CBT) revealed varying levels of readiness,

The top three aspects highlight the communities' existing strengths in conservation and information management:

Aspects Demonstrating the Highest Level of Readiness (Most Ready):

Aspect 1 (Management and Information): Achieved a mean score of 4.48

Aspect 9 (Caring for Nature): Achieved a mean score of 4.56

Aspect 10 (Caring for Culture): Achieved a mean score of 4.44

Aspects Demonstrating the High Level of Readiness (High Ready):

Aspect 2 (Caring for people): Achieved a mean score of 3.87

Aspect 5 (Reducing Waste): Achieved a mean score of 3.80

The bottom five aspects indicate critical areas requiring immediate development and structural improvement:

Aspects Demonstrating the Moderate Level of Readiness (Moderately Ready):

Aspect 3 (Good Employment): Achieved a mean score of 3.17

Aspect 7 (Reducing Pollution): Achieved a mean score of 3.05

Aspect 6 (Caring for Water): Achieved a mean score of 3.04

Aspect 4 (Caring for Climate): Achieved a mean score of 2.73

Aspects Demonstrating the Lowest Level of Readiness (Least Ready):

Aspect 8 (Food & Products): Achieved a mean score of 2.50

None of the aspects fell into the Low Level of Readiness (Low Ready).

Discussion Points

Strengths

The findings indicate that the communities possess significant strengths, particularly in areas related to conservation and local engagement. This is evidenced by the high readiness scores in Caring for Nature and Caring for Culture, reflecting a strong commitment to supporting biodiversity conservation and protecting local cultural heritage and traditions. Furthermore, the high score in Management and Information suggests that communities are proficient in providing information regarding local natural and cultural resources to tourists.

Opportunities for Development

The analysis identifies several critical areas where readiness is moderate or significantly low, primarily those that require structural planning, policy implementation, and financial commitment:

Caring for Climate: This is the most underdeveloped dimension. Readiness is notably low in specific indicators such as carbon credit compensation mechanisms, transition to renewable energy sources, and investment in climate-friendly infrastructure (e.g., electric vehicle charging stations).

Caring for Water: The moderate readiness level is primarily driven by the lack of structural policies, specifically the absence of policies or projects for rainwater harvesting and reuse.

Good Employment: Readiness is only moderate, indicating a need for better labor practices, particularly in establishing systems to protect workers' rights and provide welfare benefits that exceed legal standards.

Caring for People (Financial Sustainability): A key weakness within this dimension is the low score for the indicator concerning the investment of at least 10% of revenue in local sustainability projects, which underscores a lack of dedicated budget allocation for community sustainability efforts.

Responsible Sourcing & Sustainable Food: The readiness levels for indicators related to the procurement of certified food and beverages and the offering of at least 80% organic food are still low, suggesting a need to develop a greener and more standardized supply chain.

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