



A conceptual framework for a sustainable agro-eco tourism development for CSU Gonzaga campus

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Abstract

This paper presents a conceptual framework for sustainable agro-eco tourism development at the Cagayan State University (CSU) Gonzaga Campus. Addressing global and local development initiatives, specifically the Sustainable Development Goals (SDGs) 8, 12, and 15, and the National Tourism Development Plan (NTDP) 2023-2028, the framework emphasizes the role of ecotourism as a tool for sustainable development. The Philippines' agro-eco tourism sector, contributing 12.7% to the 2019 GDP, shows significant potential for growth but faces challenges such as infrastructure development, promotion, and ecological preservation. The research employs a descriptive, explanatory, and case study approach, with data collection methods including focus group discussions with key stakeholders and literature review. A stakeholder analysis underscores the importance of collaboration among various interest groups, institutions, and individuals. CSU Gonzaga Campus, with its rich agro-forestry resources and the CSU Bamboo Sanctuary, is poised to become an agro-eco tourism destination. The Bamboo Sanctuary not only increases bamboo material supply and integrates new processing technologies but also addresses climate change impacts, creates jobs, and promotes bamboo's environmental benefits. The paper highlights community-based tourism, advocating for local ownership and management of tourism projects. Collaboration, a key strategy, involves shared resources, skills, and knowledge to achieve common goals. The study discusses successful collaborative relationships between the education community and the tourism sector, emphasizing non-monetary resources and community ownership. A synergic framework of collaboration, integrating community-based tourism, synergy theory, and CSU's profile, is proposed. The organizational structure for the Bamboo Sanctuary includes roles such as President, Campus Executive Officer, and heads of various departments. Recommendations for future research focus on assessing the framework's effectiveness in income generation, identifying implementation gaps, and addressing barriers. This framework aims to foster sustainable economic growth, responsible consumption, and ecological preservation, aligning with both global and national development agendas.

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Introduction

The development of sustainable agro-eco tourism is increasingly recognized as a vital component of regional and national economic growth strategies. The Cagayan State University (CSU) Gonzaga Campus in the Philippines is embarking on a transformative journey to establish itself as a premier agro-eco tourism destination (Fig. 1). This initiative aligns with global and local development agendas, notably the Sustainable Development Goals (SDGs) 8, 12, and 15, which emphasize decent work and economic growth, responsible consumption and production, and life on land, respectively. Additionally, the project is in sync with the National Tourism Development Plan (NTDP) 2023-2028, which underscores ecotourism as a tool for sustainable development. The Philippine tourism sector significantly contributed 12.7% to the 2019 GDP, with agro-eco tourism demonstrating substantial growth due to an increasing demand for sustainable and eco-friendly travel experiences. Despite its potential, the sector faces several challenges, including inadequate infrastructure, limited promotional efforts, and the delicate balance required between tourism development and ecological preservation. Addressing these issues is crucial for the success and sustainability of agro-eco tourism initiatives. This paper introduces a conceptual framework tailored for the sustainable agro-eco tourism development of CSU Gonzaga Campus. The framework is grounded in a robust research design that incorporates descriptive, explanatory, and case study approaches. Data collection methods include focus group discussions with key stakeholders and an extensive literature review. Through stakeholder analysis, the paper identifies the critical role of collaboration among various interest groups, institutions, and community members in achieving sustainable tourism outcomes. The CSU Gonzaga Campus is uniquely positioned for agro-eco tourism development, thanks to its rich agro-forestry resources and the established CSU Bamboo Sanctuary. The sanctuary not only boosts the supply of bamboo materials in the province but

also integrates innovative technologies in bamboo processing and product development. It addresses climate change impacts, provides employment opportunities for local and underprivileged communities, showcases high-quality bamboo crafts, and educates the younger generation on the environmental benefits of bamboo. Central to this initiative is the concept of community-based tourism, which advocates for local community ownership, management, and control of tourism projects. Collaboration among stakeholders is identified as a key strategy for success. The paper outlines a synergic framework of collaboration that includes community-based tourism principles, synergy theory, and a detailed profile of CSU Gonzaga Campus and its Bamboo Sanctuary. The proposed organizational structure and recommendations for future research aim to enhance the effectiveness of this framework in income generation, gap identification, and barrier mitigation, ultimately fostering sustainable economic growth and environmental stewardship.



Fig. 1. Gonzaga Campus

Review literature

Community engagement plays a crucial role in sustainable tourism development, as evidenced by various research studies. Studies in Bhutan emphasize the positive impacts of Community-Based Sustainable Tourism (CBST) on the economy and sociocultural aspects, highlighting the need for collaborative strategies between the community, local government, and tourism businesses (Gyeltshen *et al.*, 2023). Similarly, research in Malaysia underscores the significance of community participation in promoting economic aspects of sustainability in tourism, particularly in destinations

like (Balige Nurlisa *et al.*, 2023). Furthermore, studies in Thailand emphasize the importance of leadership and local engagement as key drivers for successful community-based tourism enterprises, showcasing how these factors contribute to sustainable tourism practices and value generation within communities (Trin *et al.*, 2023). Overall, these findings stress the essential role of community engagement in fostering sustainable tourism practices and economic development within localities.

Sustainable tourism plays a crucial role in generating economic benefits at both local and regional levels. Research highlights that sustainable tourism practices encompass conservation, economic benefits, collaboration, and environmental impact Jennifer and Chan (2023) Studies emphasize that nature-based tourism in protected areas significantly boosts local economies, benefiting even the poorest households through income and production spillovers. However, challenges arise from the disconnect between tourism policies and their execution, impacting the environment, energy, and socio-economic conditions of local communities (Anisa, 2023). To enhance sustainable tourism, it is essential to focus on strategies like greater collaboration among stakeholders, conservation efforts, and long-term growth planning impact Jennifer and Chan (2023). Overall, sustainable tourism not only fosters economic development but also contributes to environmental integrity and societal well-being (Gheorghe and Cozea, 2023; Alberta *et al.*, 2023).

Agro-eco tourism plays a crucial role in biodiversity conservation by linking agricultural activities with tourism to promote sustainable practices and protect plant varieties. It serves as a means to enhance visitor understanding of natural and cultural values, contributing to green economic growth and biodiversity sustainability. However, challenges exist in achieving the harmonization of regulations and encouraging community participation in eco-tourism and agrotourism to enhance biodiversity and green economy development (Sri *et al.*, 2022). Additionally,

ecotourism, when properly developed and managed, can mediate between protected area management, local communities, and tourists, fostering conservation objectives and providing economic benefits, perceptions of the impacts of nature conservation and ecotourism management. By involving local people in ecotourism activities, positive attitudes towards biodiversity conservation can be cultivated, aiding in local area development and ensuring a quality tourist experience, and perceptions of the impacts of nature conservation and ecotourism management.

Academic institutions play a crucial role in advancing sustainable tourism through curriculum development and research initiatives. Studies emphasize the importance of integrating real cases and tools in tourism syllabuses to develop sustainability models and metrics (Sustainable Tourism and an Analysis of Opportunities for and Challenges to Researchers and Professionals, 2022). Furthermore, the strategic partnership between higher education institutions and the tourism industry is vital for delivering sustainable tourism materials effectively, focusing on student-based learning techniques for long-term investment in human resources (Budhi and Fitriani, 2023). Academic research also highlights the significance of innovative strategies and frameworks for sustainable destination management, proposing analytical frameworks that integrate intervention approaches, strategic frameworks, and visions to guide sustainable policy evaluation and goal definition within destination communities (Smart and Sustainable Destination Management: An Analytical Framework, 2023). Additionally, research on alternative policy frameworks for tourism development underscores the value of institutional and governance development programs in integrated scenarios and tourism development policies in individual scenarios (Nafiah and Fauzi, 2022).

Visitor perceptions and expectations play a crucial role in agro-eco tourism planning and management. Studies on terraced agro-cultural heritage landscapes in China reveal that tourists perceive these sites

positively, focusing on landscape, ecology, culture, and service aspects (Misak, 2022). Similarly, research on the interpretation of agricultural heritage systems emphasizes the importance of effective interpretation strategies, especially participatory approaches, in enhancing visitor understanding and awareness for heritage conservation. Furthermore, the value of ecosystem services provided by mountain farms, preferred by tourists, includes landscape shaping, cultural and environmental benefits, biodiversity conservation, and hydrogeological asset regulation (Mazzocchi and Sali, 2022). These findings underscore the need for integrated and informed management frameworks, such as the Protected Area Visitor Management Framework, to address visitor attitudes, biodiversity monitoring, environmental risks, and income generation in protected areas (Špačková, 2023).

Materials and methods

The research methodology for this study on sustainable agro-eco tourism development at Cagayan State University (CSU) Gonzaga Campus is a multi-faceted approach combining descriptive, explanatory, and case study research designs. The primary data collection methods include focus group discussions with key stakeholders, such as local community members, university officials, tourism experts, and environmental advocates, to gather diverse perspectives and insights. Additionally, an extensive literature review is conducted to contextualize the study within existing academic and practical frameworks of sustainable tourism and community-based tourism. Stakeholder analysis is a critical component of the methodology, identifying and examining the roles, interests, and influence of various stakeholders involved in the development and management of agro-eco tourism at the CSU Gonzaga Campus. This analysis helps to understand the dynamics of collaboration and the potential challenges and opportunities that may arise in the process. The data collected through these methods are analyzed qualitatively to identify common themes, patterns, and insights that inform the development of a conceptual framework for sustainable agro-eco

tourism. This framework integrates principles of community-based tourism, the theory of synergy, and the specific context and resources of the CSU Gonzaga Campus, particularly its Bamboo Sanctuary. The study also includes a review of organizational structures and management strategies to propose an effective organizational chart for the Bamboo Sanctuary, ensuring efficient implementation and operation of the agro-eco tourism initiatives.

Results

The study on sustainable agro-eco tourism development at Cagayan State University (CSU) Gonzaga Campus yielded several significant findings. The focus group discussions revealed a strong interest and commitment among stakeholders, including local community members, university officials, and environmental advocates, to develop the campus into a premier agro-eco tourism destination. Stakeholders highlighted the unique agro-forestry resources and the CSU Bamboo Sanctuary as key assets that can attract tourists seeking sustainable and eco-friendly experiences (Table 1).

Table 1. Opportunities and challenges

Opportunities	Challenges
Tourism contributed 12.7% to the 2019 GDP	Infrastructure deficiencies hinder access and visitor experience.
Agro-eco tourism shows growth due to demand for sustainable experiences	Promotion efforts are limited, affecting market reach and awareness. Balancing tourism development with ecological preservation poses challenges.

The Table 2 encapsulates the key initiatives undertaken by the CSU Bamboo Sanctuary and their respective outcomes, highlighting the multifaceted impact on the local economy, environment, and community.

The stakeholder analysis identified several critical roles and influences that various groups play in the development process. Local community members expressed a desire for greater ownership

and management of tourism projects, emphasizing that community-based tourism can provide economic benefits and enhance social cohesion. University officials underscored the importance of integrating academic research and extension

services into the tourism development framework, while tourism experts and environmental advocates highlighted the urgent need for innovative and sustainable practices to ensure ecological preservation.

Table 2. CSU bamboo sanctuary initiatives and outcomes

Initiative	Outcome
Increased supply of bamboo materials in the province	Enhanced availability of raw bamboo materials, supporting local crafts and construction industries.
Infused new technologies in the processing and product development of bamboo	Adoption of advanced bamboo processing techniques, leading to improved product quality and diversity, fostering innovation in bamboo-based products.
Addressed the impact of worsening climatic conditions	Implementation of sustainable bamboo cultivation practices, contributing to climate change mitigation and adaptation, including soil erosion control and carbon sequestration.
Provided solutions to create more jobs for the locals and underprivileged in the community	Creation of employment opportunities in bamboo cultivation, processing, and product manufacturing, improving livelihoods and reducing poverty in the local community.
Showcased fine crafted bamboo furniture and handicrafts	Development and exhibition of high-quality bamboo products, enhancing the visibility and marketability of local crafts, and attracting tourists and buyers.
Advocated to the younger generations the benefits of bamboo to their future and to their environment	Educational programs and outreach activities promoting the environmental and economic benefits of bamboo, fostering environmental awareness and stewardship among the youth.



Fig. 2. CSU bamboo sanctuary



Fig. 3. CSU bamboo sanctuary logo



Fig. 4. Different places of CSU bamboo sanctuary

The literature review provided a solid theoretical foundation, supporting the integration of community-based tourism principles and the theory of synergy into the conceptual framework. It emphasized that successful agro-eco tourism development requires effective collaboration among stakeholders, leveraging their resources, skills, and knowledge. The review also highlighted best practices in sustainable tourism and community engagement that can be adapted to the CSU Gonzaga Campus context.

The analysis of the CSU Bamboo Sanctuary revealed its significant potential to serve as a cornerstone of the agro-eco tourism initiative. The sanctuary’s focus on increasing bamboo material supply, integrating new processing technologies, addressing climate change impacts, and providing employment opportunities aligns well with the goals of sustainable development. The sanctuary also serves as an educational platform, showcasing fine crafted bamboo furniture and handicrafts, and advocating the environmental benefits of bamboo to younger generations (Fig. 2, 3&4).

The proposed organizational structure for the Bamboo Sanctuary includes a President, Campus Executive Officer, and heads of various departments such as attractions and amenities, finance, sales and marketing, and IT. This structure aims to ensure efficient management and operation of the sanctuary, facilitating the implementation of the agro-eco tourism framework.

The results indicate that the CSU Gonzaga Campus has significant potential to become a model of sustainable agro-eco tourism. The proposed framework, grounded in stakeholder collaboration and community-based tourism principles, provides a comprehensive approach to achieving sustainable economic growth, responsible consumption, and ecological preservation. Future research should focus on evaluating the effectiveness of this framework, identifying gaps in its implementation, and addressing barriers to ensure its long-term success.

Discussion

The opportunities presented by agro-eco tourism in the Philippines are substantial and promising. Tourism as a whole contributed significantly to the national GDP, accounting for 12.7% in 2019. This economic impact underscores the potential of agro-eco tourism, which has been witnessing growth driven by increasing consumer demand for sustainable travel experiences. Visitors are increasingly seeking destinations that offer meaningful interactions with nature while promoting environmental conservation and community engagement. However, several challenges must be addressed to fully harness these opportunities. Infrastructure deficiencies pose a significant barrier, affecting both access to agro-eco tourism sites and the overall visitor experience. Improvements in transportation networks, accommodation facilities, and other essential infrastructure are essential to attract and accommodate tourists effectively. Promotion also remains a critical challenge. Limited marketing efforts and awareness campaigns hinder the visibility and market reach of agro-eco tourism destinations. Effective promotional strategies are necessary to

educate potential visitors about the unique offerings of agro-eco tourism and to position these destinations competitively in the tourism market. Furthermore, a key challenge lies in balancing tourism development with ecological preservation. The rapid growth of tourism can exert pressure on natural resources and ecosystems, leading to environmental degradation if not managed sustainably. Policies and practices that prioritize environmental conservation while promoting tourism development are crucial to ensure the long-term viability and attractiveness of agro-eco tourism destinations. In conclusion, while agro-eco tourism in the Philippines presents significant economic opportunities and aligns with global trends towards sustainable tourism, addressing infrastructure deficits, enhancing promotional efforts, and implementing robust conservation strategies are essential to overcoming current challenges and realizing the full potential of this burgeoning sector.

The initiatives and outcomes of the CSU Bamboo Sanctuary underscore its pivotal role in fostering sustainable development at Cagayan State University's Gonzaga Campus. Through increased bamboo supply, adoption of advanced processing technologies, and proactive measures to mitigate climate impacts, the sanctuary has not only bolstered local economies by creating jobs and promoting high-quality bamboo products but also contributed significantly to environmental conservation efforts. The sanctuary's emphasis on community-based tourism has empowered local stakeholders, fostering ownership and collaboration while promoting cultural preservation. Educational outreach initiatives have effectively communicated the environmental benefits of bamboo to younger generations, ensuring sustainability awareness for the future. Challenges such as infrastructure limitations and the delicate balance between tourism development and ecological preservation persist but are being addressed through strategic planning and stakeholder engagement. Overall, the CSU Bamboo Sanctuary exemplifies a holistic approach to agro-eco tourism, integrating economic growth, environmental stewardship, and community empowerment to create a model of sustainable development in the Philippines.

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