



HUNGARIAN UNIVERSITY OF AGRICULTURE AND LIFE SCIENCES

**LANDSCAPE FRAMEWORK, SOCIAL AND ECOLOGICAL ASPECTS
OF ECOTOURISM DEVELOPMENT IN GHANA: AN ASSESSMENT OF
ASUOGYAMAN DISTRICT**

THESES OF THE Ph.D. DISSERTATION

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1. Background of the Study Questions and Objectives

Over the past few decades, ecotourism has grown into one of the fastest-expanding sectors in global tourism, offering diverse economic, ecological, and socio-cultural benefits (Bryce et al., 2016; Dou et al., 2019; Nesbitt et al., 2017; UNWTO, 2019). Central to this growth is the increasing recognition of cultural heritage and indigenous landscapes as valuable resources that shape meaningful and sustainable tourism experiences. Scholars from various disciplines have underscored the aesthetic, symbolic, and economic roles of cultural landscapes in supporting responsible tourism (Barrena et al., 2014; Bieling, 2014; Dickinson and Hobbs, 2017; Stanik et al., 2018; Xiao et al., 2018).

In developing countries like Ghana, tourism remains one of the few industries showing consistent growth, driven largely by its potential to attract foreign investment, generate employment, and stimulate local economies. Ecotourism, in particular, is promoted in global development agendas as a transformative tool for biodiversity conservation, cultural preservation, and enhancing community livelihoods. Africa, with 98 UNESCO World Heritage Sites—47 of which are cultural—holds immense but underrecognized potential in this domain. Ghana, despite its rich tapestry of cultural and natural assets, remains underrepresented on the UNESCO World Heritage List, with only two cultural properties inscribed (Laetitia, 2020; UNWTO, 2019).

Since the late 1980s, Ghana has made significant efforts to integrate tourism into its national development strategy. The establishment of the Ministry of Tourism in 1993, along with multiple long-term strategic plans (e.g., 1996–2010 and 2013–2027), signal the government's commitment. However, the tourism sector still faces critical challenges, including overreliance on a narrow range of underdeveloped attractions, insufficient regional planning, and limited local community involvement in tourism initiatives.

This thesis focuses on Ghana's Asuogyaman District (AD) in the Eastern Region—referred to as a "hidden treasure" due to its rich yet underutilized natural and cultural assets. The region boasts an array of ecotourism resources including waterfalls, forest reserves, archaeological sites, indigenous cultures, and scenic landscapes, yet it remains one of the least visited areas by both domestic and international tourists. Despite this, the region is acknowledged by the Ministry of Tourism as having high potential for sustainable ecotourism development.

In contrast to existing literature (Amuquandoh, 2010; Chen and Qiu, 2017; Liu et al., 2012; Mason, 2012; Mathieson and Wall, 1987) that focuses primarily on the management of ecotourism benefits, this study emphasizes the identification, interpretation, and promotion of ecotourism zones—particularly in understudied, resource-rich areas like Asuogyaman. By adopting a participatory and landscape-based approach, the research aims to uncover new pathways for sustainable regional tourism development that both respects local heritage and stimulates community-led growth.

The central aim of this research is to enhance understanding and promote the ecotourism potential of the Asuogyaman District by identifying, interpreting, and documenting its resources in alignment with the principles of sustainable development. In doing so, the study seeks to address key gaps in ecotourism planning—namely, inadequate local participation, weak institutional coordination, and the neglect of emerging but untapped cultural landscapes.

This research is guided by the overarching question: "How can the hidden and untapped ecotourism treasures in cultural landscapes be discovered and developed?"

To address this, the study outlines four specific research questions and corresponding objectives:

1. Character of the Landscape

- Research Question: What is the distinctive character of the Asuogyaman District landscape, considering both physical features and local community connections?
- Objective: To characterize the district's physical and ecological attributes while capturing community perceptions that can enhance ecotourism planning.

2. Stakeholder Roles and Institutional Capacity

- Research Question: What roles and capacities do stakeholders and institutions hold in sustainable tourism development?
- Objective: To assess the influence, coordination, and contributions of various stakeholders toward ecotourism development in the district.

3. Community Sentiments and Participation

- Research Question: What are the perceptions of local communities regarding cultural landscapes and their role in ecotourism?
- Objective: To explore community support, expectations, and potential concerns related to tourism development in their environment.

4. Policy and Planning Recommendations

- Research Question: What strategic policy recommendations can enhance institutional planning and design for ecotourism development?
- Objective: To propose actionable policy and design strategies that align regional planning with community empowerment and conservation goals.

This study is organized into seven chapters that collectively examine the development of ecotourism in Ghana's Asuogyaman District. It begins with an introduction to the research context, followed by a literature review exploring ecotourism concepts, stakeholder engagement, and theoretical frameworks. The methodology chapter outlines a mixed-methods approach combining quantitative and qualitative techniques to analyze community perspectives. Research findings detail landscape features, stakeholder roles, and local perceptions, while subsequent chapters provide policy recommendations, highlight scientific contributions—such as the innovative use of word frequency analysis—and emphasize the importance of community participation. The study concludes by summarizing its key findings and offering directions for future research on sustainable tourism.

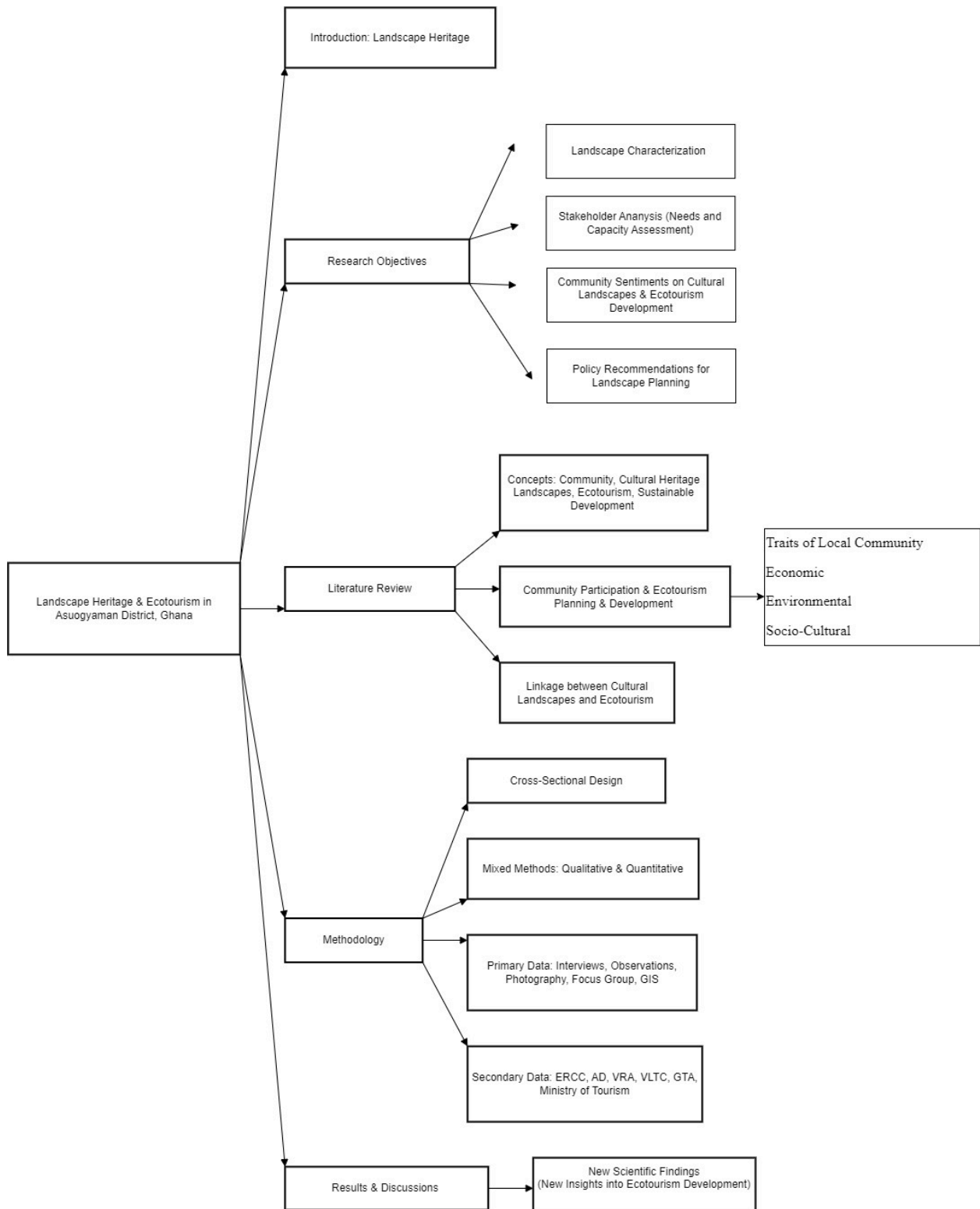


Figure 1: Organization of the Research Work

2. Materials and Methods

2.1 Study Area: Asuogyaman District

The Asuogyaman District Assembly is one of the 260 Metropolitan, Municipal and District Assemblies in Ghana and forms part of the thirty-three Municipalities and Districts in Eastern Region. It covers a total estimated surface area of 1,507 square kilometers and constitutes 5.7% of the total area of the Eastern Region. Geographically (Figure 2), the district is situated between latitudes 6° 34' N and 6° 10' N, and longitudes 0° 1' W and 0° 14' E, with Atimpoku serving as its administrative capital.

The district shares borders with Kwahu Afram Plains South District to the north, Upper Manya Krobo District and Lower Manya Krobo Municipal to the south and west, and to the east with Kpando Municipal, North Dayi District, Ho Municipal, and the North Tongu District of the Volta Region. As of the 2010 population and housing census, the district has a population of 98,046, comprising 47,030 males and 51,016 females.

Asuogyaman District is critically acclaimed for hosting the Akosombo Dam (Figure 2), one of Ghana's foremost tourist attractions. Initiated in 1965 following the discovery of bauxite reserves on the Kwahu Plateau, the dam harnesses the Volta River's water for generating power essential for the smelting of aluminum. Comprising a rock-fill dam, spillway, and powerhouse, the Akosombo Dam was officially commissioned on January 22, 1966, by Osagyefo Dr. Kwame Nkrumah, then-President of Ghana. Standing 132 meters tall and extending 660 meters long, the dam has created a vast reservoir with a surface area of 780 square kilometers and a total storage capacity of 148 million cubic meters, significantly contributing to both domestic and export power supply.

The resultant Volta Lake, extending nearly the entire length of Ghana from Daboya in the north to Akosombo in the south, is the world's largest man-made lake by surface area. It supports a rich biodiversity including approximately 114 different fish species, with an annual fish population catch ranging from 35,000 to 40,000.

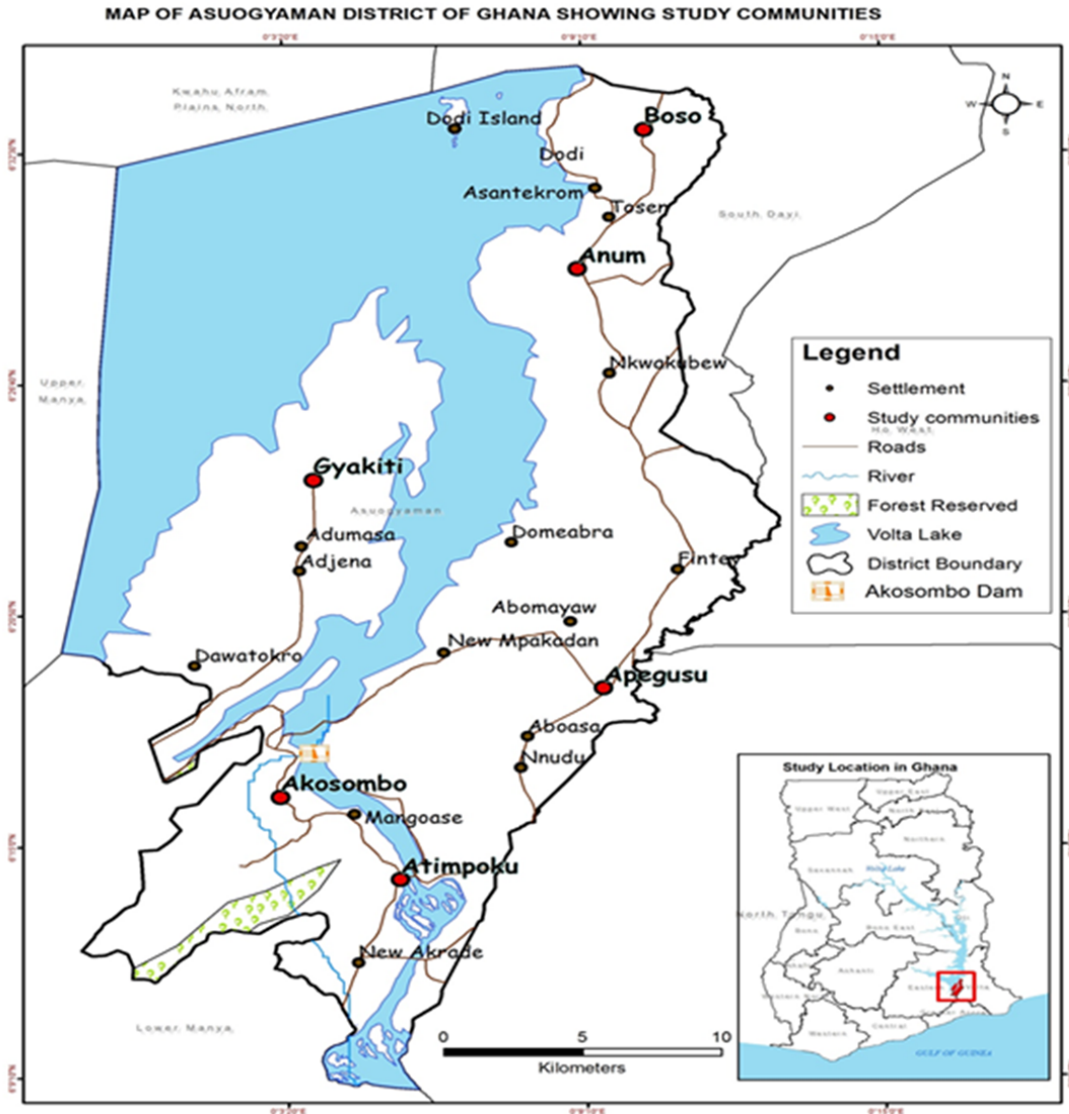


Figure 1: Map of Study Area - Asuogyaman District

Source: Authors Construct

2.2 Data Collection and Instruments

To ensure a robust and multidimensional understanding of ecotourism development in the Asuogyaman District, the study employed a combination of established data collection instruments aligned with the research objectives. Two primary methods, semi-structured and in-depth interviews—were used to capture both community-level and institutional perspectives. Semi-structured interviews were conducted with 258 participants from four communities (Atimpoku, Akwamufie, Mpakadan, and Gyakiti), representing diverse occupations such as local

entrepreneurs, tour guides, and farmers. This flexible format combined open- and closed-ended questions, allowing for detailed, context-rich responses, particularly suited to areas with lower literacy levels. In-depth interviews were also conducted with key informants from institutions such as the Eastern Regional Coordinating Council, Asuogyaman District Assembly, Volta River Authority, Ghana Tourism Authority, and local traditional leaders. These interviews offered strategic insights into stakeholder roles and institutional dynamics. Together, these complementary methods enabled a comprehensive data set that reflected both grassroots experiences and policy-level considerations in ecotourism planning.

Table 1: Research Questions and Summary of Associated Materials, Methods and Analysis

No.	Research Question	Research Methodology	Data Collection Instruments	Data Analysis
1	What is the character of the cultural landscape understudy?	Structured Interviews - Survey / GIS/ Transect Walk / Observation / Photos	Questionnaire / Cartographic / Remote Sensing Data	RStudio / GIS / Pictographic Analysis
2	Roles of Stakeholders in Sustainable Tourism Development	Structured Interviews - Survey / Key Informant Interviews	Questionnaire / Interview / Guide/Checklist	RStudio / Recording & Transcription
3	Sentiments of local communities concerning the use of landscapes for Sustainable Tourism Development	Community Surveys/ Focus Group Discussions	Questionnaire / Discussion / Checklist	RStudio / Recording & Transcription
4	Policy recommendations and proposals for landscape planning	Community Surveys/ Key Informant Interviews	Questionnaire / Interview / Guide/Checklist	RStudio / Recording & Transcription

and design in
ecotourism
development?

Source: Authors Construct

2.3 Target Population, Sample Size and Sampling Procedure

Population data from the Ghana Statistical Service served as the foundation for establishing the sampling frame across four selected communities in the Asuogyaman District: Atimpoku, Akwamufie, Mpakadan, and Gyakiti. These communities had a combined total of 3,306 households, with Atimpoku having the highest number. Based on the International Fund for Agricultural Development formula and a 95% confidence level, the desired sample size was calculated to be 246. A 5% margin was added to account for potential non-responses, resulting in a final sample size of 258 participants. To ensure balanced representation, the study adopted both probability and non-probability sampling methods. The communities were stratified into downstream and upstream cohorts to reflect geographical and socio-economic diversity, with deliberate selection of Atimpoku and Akwamufie for their administrative importance, and Mpakadan and Gyakiti for their marginalization in tourism development.

Sample allocation was proportional to the number of households in each community, ensuring fair representation in the overall dataset. Atimpoku, with the largest household count, contributed the highest number of respondents (103), followed by Akwamufie (77), Mpakadan (52), and Gyakiti (26). This stratified sampling approach allowed the study to reflect both urbanized and underserved areas, capturing a wide range of perspectives on ecotourism development. The method ensured that insights from more developed and less accessible communities were equally incorporated into the analysis, enriching the overall findings of the research.

The target population for the study was both male and female residents of Atimpoku, Akwamufie, Mpakadan and Gyakiti who were aged 18 years and above. Also, the role of stakeholders in the development of Community-Based Ecotourism, is very critical as they help in the identification of prospects, implementation of planned projects and co-management of ecotourism sites (Kininmonth et al., 2015; United Nations., 2018). Stakeholders and institutions, such as the Eastern Regional Coordinating Council (ERCC), Asuogyaman Traditional Council (Chiefs and

Community Elders), Volta River Authority (VRA), Asuogyaman District Assembly (ADA), Volta Lake Transport Cooperation (VLTC), Ghana Tourism Authority (GTA), Ministry of Tourism (MoT), Council for Scientific and Industrial Research (CSIR), Volta Hotel (In charge of Tourism Development within the Enclave) were interviewed.

2.4 Data Analysis and Presentation

The study employed a comprehensive mixed-methods approach to data analysis, integrating both quantitative and qualitative techniques to ensure depth and rigor. Of the 271 completed questionnaires, all were validated and analyzed using RStudio version 4.2.2. Given the non-normal distribution of Likert scale data, non-parametric methods—specifically the Wilcoxon rank sum test—were used to compare groups, alongside descriptive statistics, confidence intervals, and p-values to establish statistical significance and patterns. For qualitative data, thematic coding was guided by the study's conceptual framework, with word frequency analysis enhancing the alignment between recurring terms and theoretical constructs. Latent Dirichlet Allocation (LDA), also conducted in RStudio, was used to uncover hidden topics within the text. The process included pre-processing techniques such as tokenization, stop-word removal, and lemmatization, leading to the identification and interpretation of latent themes based on word co-occurrence patterns.

In addition, perceptual data from interviews and participatory mapping were thematically analyzed to identify culturally significant landscape features like sacred groves and scenic views. These were cross-referenced with GIS-based ecological and terrain data to reveal areas of alignment between local values and geophysical suitability for ecotourism. Advanced geospatial analyses using ArcGIS (ArcPro and ArcMap), Python scripting, and remote sensing technologies supported this integration, allowing for the identification of priority areas for conservation and development. The spatial analyses enriched the contextual understanding of ecological patterns, biodiversity, and degradation risks. Overall, the data analysis was multidimensional and robust, combining statistical rigor, computational modeling, and spatial mapping to generate a holistic interpretation of the research findings, directly supporting the study's objectives and research questions.

District’s strong landscape character, rich biodiversity, and community-aligned values, making it a promising location for ecotourism development.

Respondents identified a range of hidden ecotourism treasures categorized under cultural, aesthetic, spiritual, and economic values (See Table 2 below), many of which remain underutilized and relatively unknown to both domestic and international visitors. Field data revealed a range of hidden tourism treasures, including cultural experiences like the Anum and Akwamu traditions, religious sites such as the Tutu Abo Shrine and Santa Barbara Church, historical landmarks like the Akosombo Dam and suspension bridge, and natural features like the Volta Lake and the 99 Islands of the Volta Basin. Despite their potential, most of these sites have low utilization rates for ecotourism development due to limited promotion and infrastructure.

Table 2: Respondents Listing of Potential Ecotourism Sites/Experiences

Landscape value	Specific Examples & Location	Type of Ecotourism	Utilization Rate for Ecotourism Development
Cultural Value	Rich culture of Anum, Boso and Akwamu Traditional Council	Cultural	Moderate
	Easter picnic at Gyakiti shoreline	Cultural	Moderate
	Cultural Museum at Akwamufie	Cultural	Low
Spiritual Value	Santa Barbara Church - Akosombo	Religious	Low
	Mami water shrine - Adomi	Religious	Low
	Mahu temple of the Mozama Disco Christo Church	Religious	Low
	Tutu Abo Shrine	Religious	Low
Economic Value	VRA Country’s largest hydro-electric dam- Akosombo	Historical	Moderate
	Suspension bridge - Atimpoku	Archeology	Low
	Inland port - Akosombo	Archeology	Low
	Art and Craft industry - Atimpoku	Cultural	Low
Aesthetic Value	Aquaculture	Nature	High
	Akosombo Gorge of the Volta River	Nature	Low
	Akwamu Hills Community Forest	Nature	Low
	The 99 Islands of the Volta Basin	Nature	Low
	Volta Lake	Nature	Moderate

Source: Fieldwork (2023)

One standout example is the Akwamu Hills Community Forest (AHCF), an ungazetted forest offering panoramic views of the Volta River basin. Rich in sub-montane biodiversity, the forest is home to a variety of tree species and maintained under traditional custodianship. However, the forest is increasingly threatened by the unsustainable harvesting of non-timber forest products such

as bushmeat. This disclosure by respondents underscores the need for better recognition, planning, and sustainable management of the district’s hidden ecotourism assets to unlock their full value and support local economic development.

3.1.2 Geospatial Approach to Landscape Characterization

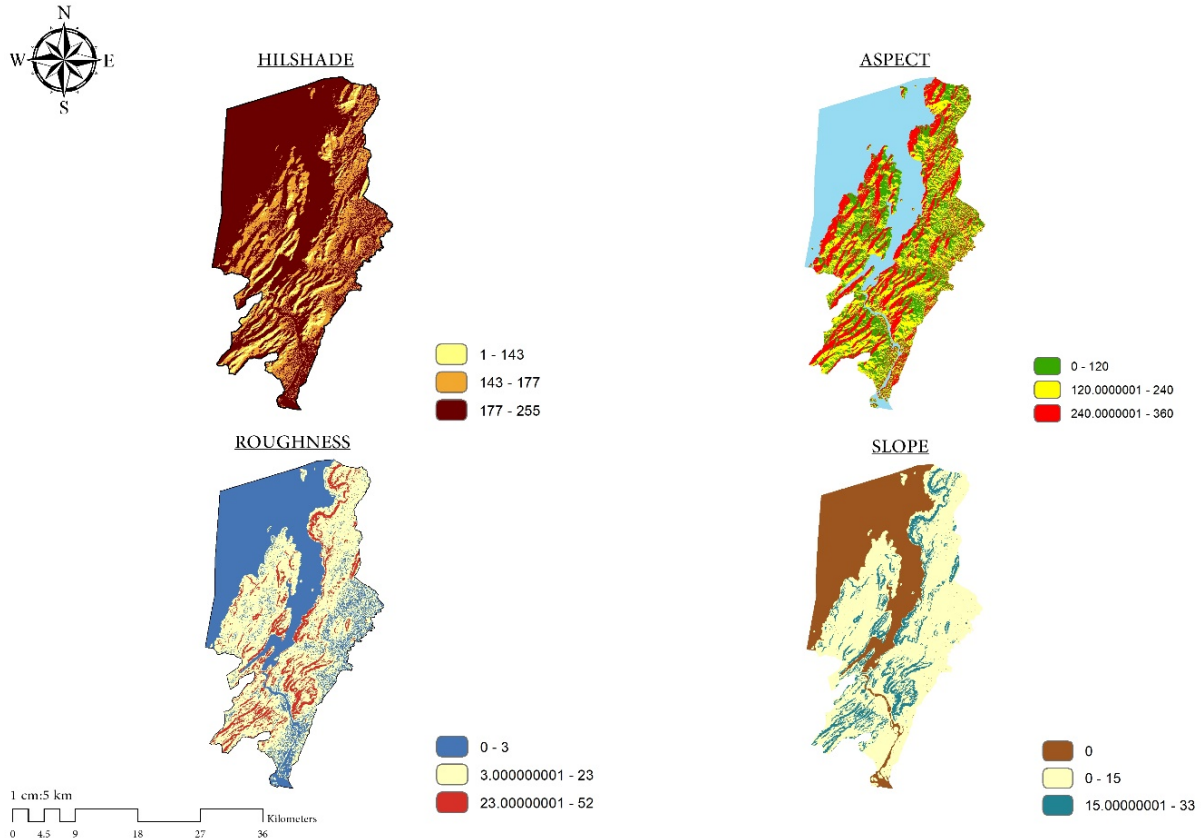


Figure 4: Major Terrain Variables Characterized in the Landform Classes (a) Hillshade (b) Aspect (c) Roughness (d) Slope

Source: Fieldwork, (2023)

The geospatial approach to landscape characterization in this study employed Digital Elevation Models (DEMs) to analyze key terrain variables – hillshade, aspect, roughness, and slope (See Fig. 4) – critical for developing an ecotourism suitability model. Hillshade analysis identified visually appealing landscapes such as hills and ridges, supporting ecotourism activities like hiking and landscape photography. Aspect analysis revealed areas with ideal solar exposure for sunrise and sunset views, highlighting opportunities for solar tourism—a growing trend that aligns with the natural beauty of the Asuogyaman District. Roughness analysis distinguished rugged areas that

can support adventure activities such as all-terrain safaris, while slope analysis helped determine the physical suitability of different areas for various ecotourism experiences, from leisurely hikes to strenuous treks.

These geospatial findings strongly align with community-based insights, which highlighted the region’s aesthetic value (e.g., Volta Gorge, Akwamu Hills, 99 Islands) and natural features (e.g., diverse flora and fauna). The combination of both data-driven terrain analysis and community perceptions affirms the Asuogyaman District’s rich, multifaceted ecotourism potential, emphasizing the need for integrated planning that respects both physical landscape characteristics and local knowledge.

3.2. Roles of Stakeholder in Ecotourism Planning and Development

This objective sought to identify and analyze the roles and contributions of various stakeholders involved in ecotourism planning and development in the Asuogyaman District.

3.2.1 Types of Ecotourism Stakeholders Identified

Two main stakeholder groups were identified—primary and secondary stakeholders—each fulfilling essential roles in the ecotourism landscape.

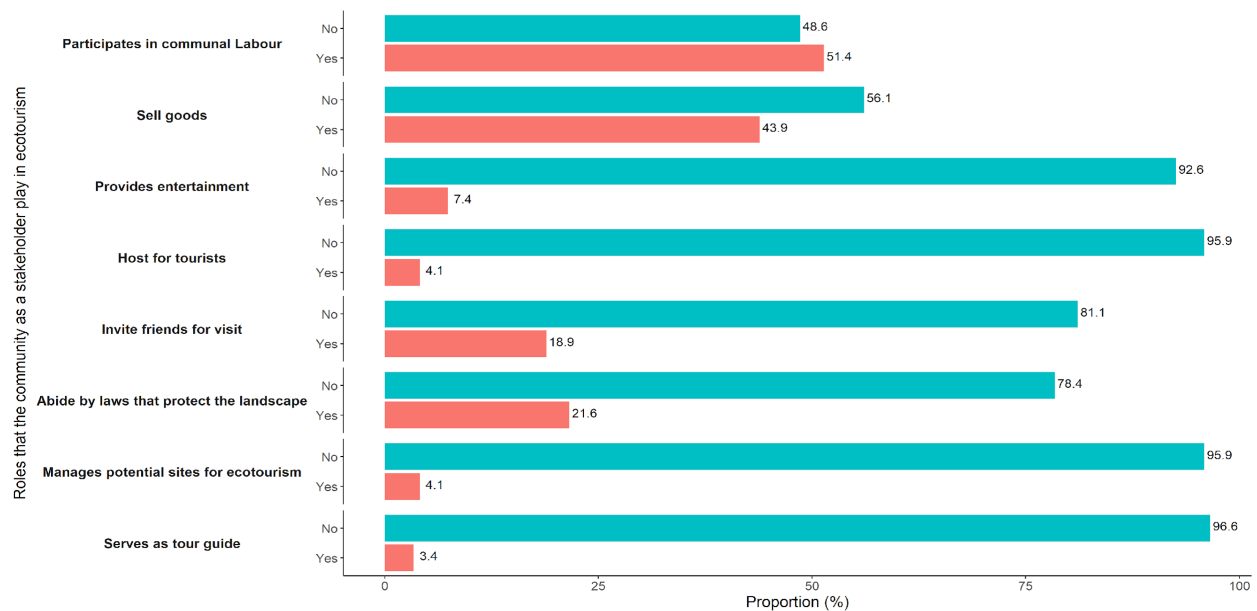


Figure 5: Role of community members in Ecotourism

Source: Fieldwork, (2023)

Primary Stakeholders: These include local community members, hotel operators, and small business owners. Community members act as hosts and guides, provide services to tourists, and contribute to local tourism through businesses and adherence to environmental regulations established by the Volta River Authority (VRA) and Asuogyaman District Assembly (ADA). Notably, local associations of hotel and recreational facility operators are the initial point of contact for tourists, enhancing their experience and encouraging further visitation (See Fig 5).

Secondary Stakeholders: This group encompasses the Eastern Regional Coordinating Council, Asuogyaman District Assembly, Volta River Authority, Ghana Tourism Authority, Ministry of Tourism, Traditional Authorities, and the Council for Scientific and Industrial Research (CSIR). These stakeholders influence district tourism policies, ensure alignment with national objectives, and act as advocates for underrepresented and vulnerable community members. Secondary stakeholders play pivotal roles in strategic planning, resource allocation, and development oversight.

3.2.2 Stakeholder Engagement in Tourism Planning and Development

Stakeholders' engagement in ecotourism initiatives was examined using three forms of participation: spontaneous, induced, and coercive, based on the work of Arnstein (1969), Pretty (1995), and Tosun (1999). Findings revealed a predominant reliance on coercive participation among the local stakeholders in the tourism development process.

Coercive Participation: Data indicates that 65% of primary stakeholders experience limited involvement, where they are often informed post-factum of major decisions. Additionally, the government and external agencies dominate agenda-setting and financial decision-making, leaving local voices unheard. In focus group discussions, local participants expressed frustration at being excluded from decisions impacting tourism, citing lost economic opportunities tied to the management of areas like Dodi Island.

Spontaneous and Induced Participation: While some spontaneous and induced participation was reported, only a minority of stakeholders—mostly those with connections or resources—experienced opportunities for active involvement. These interactions were typically limited to rare instances of consultation rather than consistent participatory planning.

3.3. Perceptions on the Use of Cultural Landscapes for Ecotourism Development

The study revealed a strongly positive perception among local communities regarding the use of their indigenous cultural landscapes for ecotourism development. Respondents expressed optimism about the economic, socio-cultural, and environmental benefits, frequently associating ecotourism with pride, community upliftment, job creation, and sustainable development.

Despite this overall positivity, the study found that community participation in planning remains largely coercive and top-down, with limited involvement in decision-making or project execution. This lack of active engagement is attributed to operational barriers (centralized governance and poor communication), structural barriers (limited financial and human resources, elite dominance), and, to a lesser extent, cultural factors (such as age and religious roles).

Table 3: Perceptions of Local Communities Concerning the Use of Cultural Landscapes for Ecotourism Development by Community Location

	Question	All (N=267)	Downstream (N=182)	Upstream (N=85)	P-value
Active	Ecotourism Planning and development decisions is in total control of the community	3.2 (1.1)	3.2 (1.1)	3.1 (1.1)	0.54
	Community is consulted before key decisions are taken	3.0 (1.2)	3.0 (1.2)	2.9 (1.1)	0.87
	The community is directly involved in providing goods/services to visitors	3.7 (1.0)	3.8 (1.0)	3.5 (1.1)	0.06*
	Ecotourism planning team made up of representatives of all groups in the community	3.3 (1.1)	3.4 (1.1)	3.2 (1.1)	0.15
Induced	People would have the chance to participate if they belonged to a certain group	3.3 (1.0)	3.3 (1.0)	3.4 (1.0)	0.27
	Alternative decisions are made available to the community but there is no room for feedback	3.4 (1.1)	3.3 (1.1)	3.6 (1.0)	0.08*
	I participate due of the material and financial benefits I gain	2.8 (1.2)	2.9 (1.3)	2.7 (1.2)	0.31
Passive	We have no say in the tourism development of the community	3.3 (1.1)	3.3 (1.1)	3.3 (1.0)	0.79

	Question	All (N=267)	Downstream (N=182)	Upstream (N=85)	P-value
	Community is told about tourism development decisions after they are made by top management	3.4 (1.1)	3.3 (1.1)	3.5 (1.1)	0.16
	External organizations and businesses take the leading role in the planning and development process	3.6 (1.0)	3.6 (1.0)	3.6 (1.0)	0.98
Operational	The centralized nature of tourism planning is not favorable	3.4 (0.9)	3.4 (0.9)	3.2 (0.9)	0.06*
	Lack of co-ordination among the Stakeholders	3.4 (1.0)	3.4 (1.0)	3.3 (1.0)	0.54
	I have very little information on tourism development related activities	3.6 (1.0)	3.7 (1.0)	3.6 (1.1)	0.89
Structural	Bad timing of gathering	3.3 (1.0)	3.4 (1.0)	3.1 (0.9)	0.13
	Community disagreement	3.4 (1.1)	3.4 (1.1)	3.5 (1.0)	0.21
	Insufficient committee meetings	3.5 (1.0)	3.5 (1.0)	3.5 (0.9)	0.78
	Inadequate finance	3.4 (1.1)	3.5 (1.1)	3.3 (1.1)	0.16
	External influence on ecotourism	3.6 (1.0)	3.6 (1.0)	3.6 (1.1)	0.76
	Inadequate education/skills of respondent	3.2 (1.2)	3.1 (1.2)	3.2 (1.1)	0.88
	Inadequate training by project management	3.4 (1.1)	3.4 (1.2)	3.4 (1.0)	0.89
	High level of elite dominance in the industry	3.6 (0.9)	3.6 (0.9)	3.5 (0.9)	0.20
Cultural	Religion forbids me from participation in ecotourism	2.0 (1.0)	2.0 (1.1)	1.8 (0.7)	0.54
	Age prevents me from participating in ecotourism development	2.0 (1.0)	2.1 (1.1)	1.8 (0.7)	0.41
	Poor people do not get the chance to participate in ecotourism development	2.3 (1.2)	2.5 (1.3)	2.0 (0.9)	0.023**
	Marital status prevents me from participating in ecotourism development	2.0 (1.0)	2.1 (1.1)	1.8 (0.7)	0.23
	Prescribed gender roles/responsibilities restrict my participation in tourism development	2.3 (1.2)	2.3 (1.2)	2.3 (1.1)	0.99
Economic (Benefits)	Increased Employment	4.1 (0.8)	4.1 (0.7)	4.0 (0.8)	0.23
	Improved Transport Infrastructure	3.5 (1.2)	3.6 (1.3)	3.5 (1.2)	0.35
	Contribution to personal income levels	4.0 (0.9)	4.0 (0.9)	4.0 (0.8)	0.96
	Improved Social Amenities	3.7 (1.1)	3.8 (1.1)	3.4 (1.1)	0.005**
Socio-Cultural (Benefits)	Utility among residents	4.0 (0.7)	4.0 (0.7)	4.1 (0.6)	0.50
	Increased demand for local artifacts	3.9 (0.7)	3.9 (0.8)	4.0 (0.5)	0.10
	Cultural diffusion	3.9 (0.7)	4.0 (0.7)	3.8 (0.6)	0.08*
	Increased community sense of pride	4.1 (0.7)	4.1 (0.7)	4.1 (0.5)	0.16

	Question	All (N=267)	Downstream (N=182)	Upstream (N=85)	P-value
Environmental (Benefits)	Increased awareness on issues of conservation	4.0 (0.7)	4.0 (0.7)	4.1 (0.5)	0.56
	Increased efforts to maintain a clean environment in the community	4.0 (0.7)	4.0 (0.8)	4.1 (0.6)	0.87
	Increased effort to preserve natural resources	4.2 (0.7)	4.1 (0.8)	4.2 (0.5)	0.76
Economic (Costs)	Increase in price of goods/services	3.7 (1.0)	3.7 (1.1)	3.7 (1.0)	0.74
	Reduced concentration on farming	3.4 (1.2)	3.3 (1.2)	3.5 (1.0)	0.17
	Increased cost of land and housing	3.9 (1.0)	3.8 (1.0)	4.0 (0.8)	0.51
Socio-Cultural (Costs)	Loss of cultural values	3.1 (1.1)	3.1 (1.2)	3.2 (0.9)	0.76
	Increased prostitution	3.3 (1.2)	3.3 (1.3)	3.4 (1.1)	0.82
	Increased crime rates	3.5 (1.1)	3.5 (1.2)	3.5 (1.0)	0.42
	Increased alcoholism/drug addiction	3.5 (1.2)	3.6 (1.2)	3.4 (1.1)	0.10
Environmental (Costs)	Increased Pollution	2.8 (1.1)	2.8 (1.2)	2.7 (1.0)	0.64
	Increased Noise making	3.1 (1.2)	3.1 (1.2)	2.9 (1.1)	0.19
	Increased bush burning and tree cutting	2.6 (1.1)	2.5 (1.1)	2.8 (1.1)	0.052*

* Means significant at 0.1 significance level

** Means significant at 0.05 significance level

Source: Fieldwork (2023)

Statistical analysis showed that downstream and upstream communities, as well as indigenes and non-indigenes, largely share positive views, but differ on specific concerns—such as equity in benefit distribution and infrastructure needs. Downstream communities were more optimistic about participation and access to benefits, while upstream communities expressed concerns over exclusion and unmet infrastructure needs. In conclusion, while communities are largely supportive of using their cultural landscapes for ecotourism, meaningful inclusive planning, addressing barriers to participation, and tailored strategies for different sub-groups are essential to ensure equitable and sustainable tourism development.

3.4 Policy Recommendations on Landscape Planning and Design for Ecotourism Planning and Development

In light of the comprehensive social and ecological analysis conducted, it became imperative for this study to undertake an institutional analysis to critically evaluate the governance structures and administrative frameworks that support ecotourism development in Ghana, particularly at the district level. This institutional analysis revealed that although Ghana possesses a relatively robust national tourism framework (See Figure 6 below), several gaps persist in its decentralization and

local-level implementation, which, if addressed, could significantly enhance the efficacy and sustainability of ecotourism development.

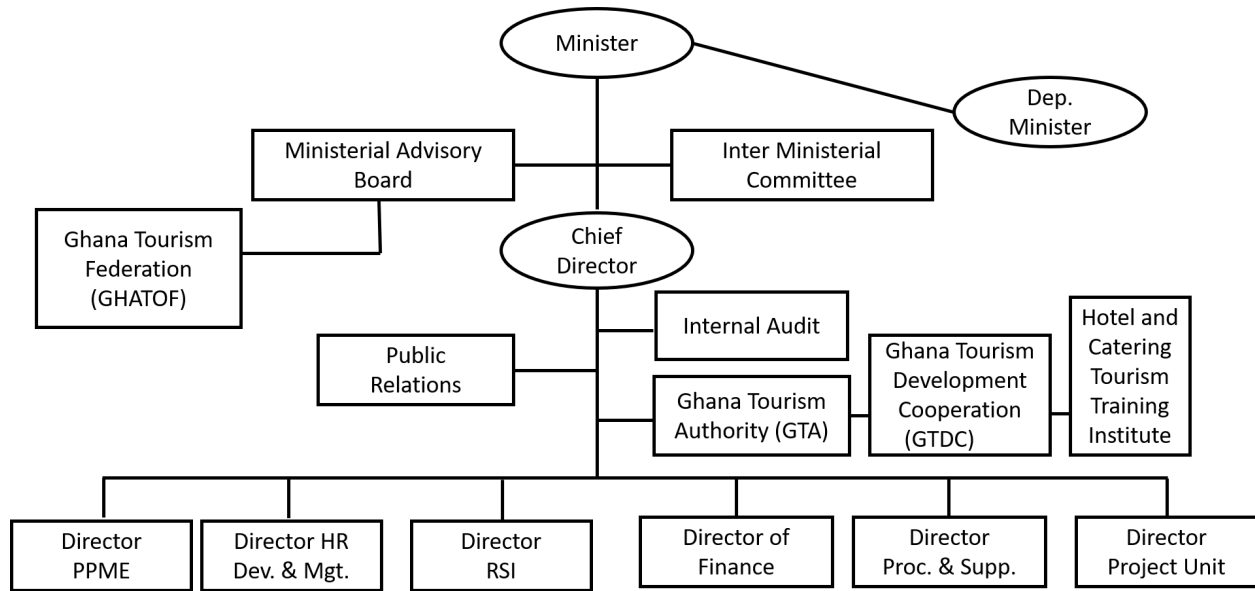


Figure 6: Organogram of the Ministry of Tourism – Ghana

Source: Ministry of Tourism

The findings demonstrate that Ghana’s tourism sector is multi-sectoral and multi-dimensional, involving various public and private actors. Key institutions such as the Ministry of Tourism (MoT), the Ghana Tourism Authority (GTA), and the Ghana Tourism Development Corporation (GTDC), alongside training institutes like HOTCATT and inter-ministerial committees, collectively contribute to national-level planning, policy formulation, investment facilitation, and promotional efforts. However, despite the structural provisions outlined in the Tourism Act of 2011 mandating decentralized tourism administration, the actual presence and integration of the GTA at the district level remain limited or entirely absent.

This institutional shortfall significantly undermines the coordination between tourism agencies and the Metropolitan, Municipal, and District Assemblies (MMDAs), particularly in areas where eco-cultural landscapes serve as key tourism assets. Furthermore, the sector's classification as a

“Schedule Two” function within Ghana’s decentralization framework limits its automatic

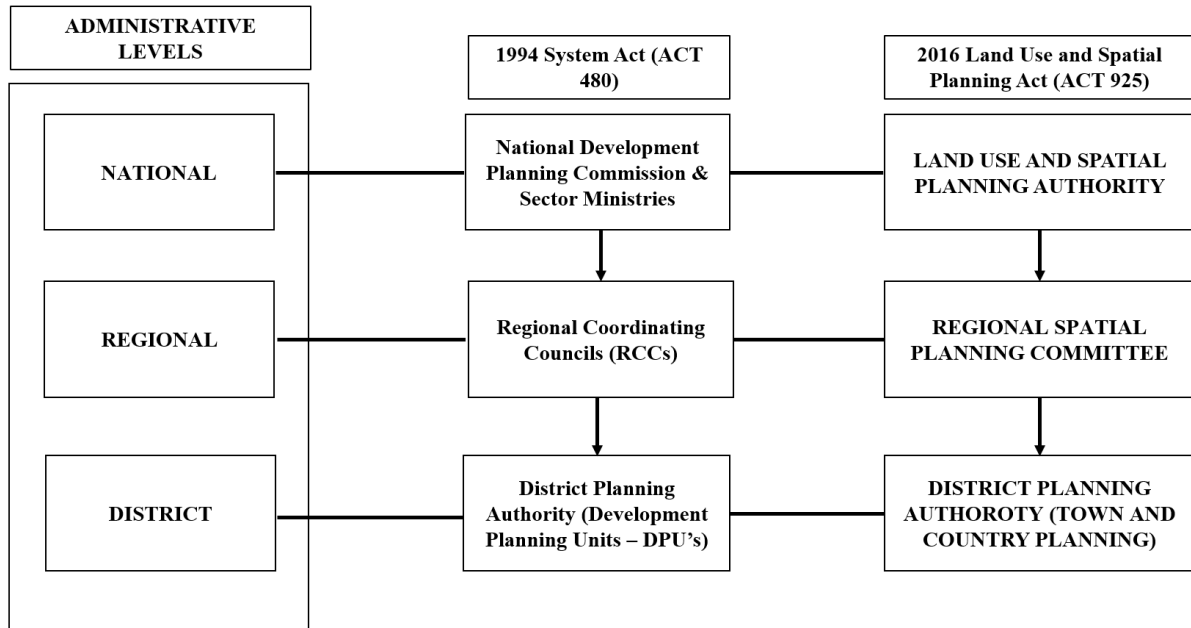


Figure 7: Decentralization and The Contemporary Spatial Planning System

Source: Authors own construct, 2019

inclusion in district-level Medium-Term Development Plans (MTDPs), necessitating proactive negotiations between tourism officers and MMDAs for policy and planning integration.

Given that ecotourism is often localized in nature and heavily reliant on community-level planning, this fragmented institutional arrangement diminishes opportunities for inclusive governance, effective stakeholder collaboration, and sustainable resource management. Based on these findings, the following policy recommendations are proposed:

1. **Establish decentralized ecotourism planning units** at the district level to promote inclusive local participation in decision-making processes.
2. **Implement geospatial planning systems** across national, regional, and district levels to support data-driven tourism development and land-use management.
3. **Develop community-informed ecotourism guidelines** that prioritize equitable benefit-sharing, cultural preservation, and social inclusion.
4. **Launch targeted capacity-building initiatives** to empower local youth, women, and entrepreneurs, aligning national tourism strategies with community needs and ensuring long-term sustainability.

4. New Scientific Findings

4.1.1 Methodological Innovations

One of the new scientific findings of the study is the integration of word frequency analysis and stratified perception analysis to capture community sentiments and differences in engagement. This dual approach revealed nuanced themes such as “building,” “local,” and “cultural,” while also highlighting spatial and demographic disparities in how ecotourism is perceived and experienced across the Asuogyaman District.

4.1.2. Participatory Landscape Characterization

One of the key scientific findings of the study is the integration of GIS-based analysis with participatory fieldwork to identify and validate ecotourism potential zones such as the Akosombo Dam, Volta Lake, and Akwamu Hills, ensuring that landscape planning is both ecologically grounded and socially inclusive.

4.1.3 Stakeholder Classification

One of the new scientific findings of the study is the clear classification of stakeholders into primary (e.g., local communities) and secondary (e.g., government agencies like GTA and VRA), which enhances coordination and enables the development of targeted, context-specific ecotourism policies.

4.1.4 Community Engagement Mechanisms

The study identified three distinct typologies of community participation in ecotourism—spontaneous, induced, and coercive—with spontaneous participation more common near major tourist sites. This classification offers a valuable framework for assessing the inclusivity and effectiveness of community involvement in tourism planning.

4.1.5. Landscape Policy and Governance Innovation

The study introduces the Participatory Landscape Policy concept as a novel scientific finding, presenting it as a tool that integrates spatial planning with grassroots involvement to promote shared stewardship and adaptive governance in ecotourism development.

5.0 REFERENCES

- Amuquandoh, F.E., 2010. Residents' perceptions of the environmental impacts of tourism in the Lake Bosomtwe Basin, Ghana. *J. Sustain. Tour.* 18, 223–238. <https://doi.org/10.1080/09669580903298531>
- Barrena, J., Nahuelhual, L., Báez, A., Schiappacasse, I., Cerda, C., 2014. Valuing cultural ecosystem services: Agricultural heritage in Chiloé island, southern Chile. *Ecosyst. Serv.* 7, 66–75. <https://doi.org/10.1016/j.ecoser.2013.12.005>
- Chen, B. xia, Qiu, Z. mian, 2017. Community attitudes toward ecotourism development and environmental conservation in nature reserve: a case of Fujian Wuyishan National Nature Reserve, China. *J. Mt. Sci.* 14, 1405–1418. <https://doi.org/10.1007/s11629-016-3983-6>
- Dickinson, D.C., Hobbs, R.J., 2017. Cultural ecosystem services: Characteristics, challenges and lessons for urban green space research. *Ecosyst. Serv.* 25, 179–194. <https://doi.org/10.1016/j.ecoser.2017.04.014>
- Dou, Y., Zhen, L., Yu, X., Bakker, M., Carsjens, G.J., Xue, Z., 2019. Assessing the influences of ecological restoration on perceptions of cultural ecosystem services by residents of agricultural landscapes of western China. *Sci. Total Environ.* 646, 685–695. <https://doi.org/10.1016/j.scitotenv.2018.07.205>
- Laetitia, R., 2020. OECD Tourism Trends and Policies 2020 OECD Tourism Trends and Policies 2020 Policy highlights. <https://doi.org/10.1787/6b47b985-en>
- Nesbitt, L., Hotte, N., Barron, S., Cowan, J., Sheppard, S.R.J., 2017. The social and economic value of cultural ecosystem services provided by urban forests in North America: A review and suggestions for future research. *Urban For. Urban Green.* 25, 103–111. <https://doi.org/10.1016/j.ufug.2017.05.005>
- Stanik, N., Aalders, I., Miller, D., 2018. Towards an indicator-based assessment of cultural heritage as a cultural ecosystem service – A case study of Scottish landscapes. *Ecol. Indic.* 95, 288–297. <https://doi.org/10.1016/j.ecolind.2018.07.042>
- Stronza, A., Durham, W., 2008. Ecotourism and conservation in the Americas.
- Stronza, A.L., Hunt, C.A., Fitzgerald, L.A., 2019. Ecotourism for Conservation? *Annu. Rev. Environ. Resour.* 44, 229–253. <https://doi.org/10.1146/annurev-environ-101718-033046>
- TIES, 2020. Ecotourism – A Path Towards Better Conservation - The International Ecotourism Society [WWW Document]. URL <https://ecotourism.org/news/ecotourism-a-path-towards-better-conservation/> (accessed 3.24.22).
- Tosun, C., 2000. Limits to community participation in the tourism development process in developing countries. *Tour. Manag.* 21, 613–633. [https://doi.org/10.1016/S0261-5177\(00\)00009-1](https://doi.org/10.1016/S0261-5177(00)00009-1)
- UNESCO, 2023. UNESCO World Heritage Centre - Africa [WWW Document]. URL <https://whc.unesco.org/en/africa/> (accessed 2.22.23).

6.0 SCIENTIFIC PUBLICATIONS OF THE AUTHOR

- **Amoako-Atta, E. & Szilvácsku, Z., (2022)** “Involvement of Stakeholders in Transforming Untapped Landscapes into Touristic Landscapes based on Ecosystem Services; A Look at The Volta Lake – Ghana.”, Fábos Conference on Landscape and Greenway Planning 7(1). doi: <https://doi.org/10.7275/0sd0-ee31>
- **Hervie, Dolores Mensah; Amoako-Atta, Ernest; Hossain, Md Billal; Illés, Bálint Csaba; Dunay, Anna.** “Impact of COVID-19 Pandemic on Hotel Employees in the Greater Accra Region of Ghana”. SUSTAINABILITY 14: 5 Paper: 2509, 18 p. (2022) Article (Journal Article) | Scientific [32698124] [Agreed]
- **Amoako-Atta, Ernest; Asmaa, Abualhagag Ahmed; Szilvácsku, Ps.** “The DPSIR Framework in Support of Sustainable Tourism Planning and Development in Asuogyaman: A Methodological Review In: Fodor, Marietta; Bodor-Pesti, Péter; Deák, Tamás (eds.) SZIEntific Meeting for Young Researchers 2020 : ITT Young Talents Meeting 2020 Budapest, Hungary : Szent István University (2021) 437 p. pp. 66-75. , 10 p. Conference Paper (Book Excerpt) | Scientific[31978477]
- **Asmaa, Abualhagag ; István, Valánszki ; Amoako-Atta, Ernest.** “A non-material benefits of ecosystem services in urban and peri-urban areas: A literature review and future research challenges”. In: Fodor, Marietta; Bodor-Pesti, Péter; Deák, Tamás (eds.) SZIEntific Meeting for Young Researchers 2020 : ITT Young Talents Meeting 2020 Budapest, Hungary : Szent István University (2021) 437 p. pp. 24-39. , 16 p. Conference Paper (Book Excerpt) | Scientific[31811647]
- **Ning, Dong Ge; Albert, Black; Yang, Yang; Ernest, Amoako-Atta,** “Sustainable Waterfront Landscape Paradigm Based on Traditional Philosophical Perspective - case study of Yangze river basin. China acta Biologica Marisiensis 4: supplement 1 p. 12 (2021) abstract / excerpt (journal article) | scientific [32430323]
- **Ning, Dong Ge; Albert, Black; Ernest, Amoako-Atta; Yang, Yang.** “Sustainable waterfront landscape paradigm based on traditional Chinese philosophical perspectives – the Xiangjiang River Basin case”. In: Benedek, Klára; Domokos, Erzsébet; Ványolós, Endre (eds.) Proceedings of the 6th Conference on Horticulture and Landscape Architecture in Transylvania: Landscape, Garden and Man - Professional Challenges of the Present and of the Near Future Targu Mures, Romania : Sapientia Hungarian University of Transylvania (2021) 109 p. pp. 58-67. , 10 p. Conference Paper (Other Conference Paper) | Scientific[32400092]
- **Amoako-Atta, Ernest; Frederick Dayour, Frederick ; Ziem Bonye, Samuel.** “Community Participation in the Management of Wechiau Community Hippo Sanctuary, Ghana”. GHANA JOURNAL OF DEVELOPMENT STUDIES 17 : 1 pp. 1-24. , 24 p. (2020) DOI Other URL Article (Journal Article) | Scientific[31978402]
- **Li, Huawei; Meng, Handong ; He, Ruizhen ; Lei, Yakai ; Guo, Yuchen ; Amoako-Atta, Ernest; Jombach, Sandor ; Tian, Guohang.** “Analysis of Cooling and Humidification Effects of Different Coverage Types in Small Green Spaces (SGS) in the Context of Urban Homogenization: A Case of HAU Campus Green Spaces in Summer in Zhengzhou, China ATMOSPHERE 11 : 8 p.m. 862 (2020) DOI WoS Scopus Other URL Article (Journal Article) | Scientific[31403765]

- Mintah, Clement; Blessing, Dwumah Manu; Mohammed, Sulamana; Bright, Archer; **Ernest, Amoako Atta**. “Urbanization and livelihood sustainability: evidence from the peri-urban zones of wa municipality in the upper west region of Ghana”. INTERNATIONAL JOURNAL OF CURRENT RESEARCH 12: 3 pp. 10773-10778., 6 p.m. (2020) Article (Journal Article) | Scientific [32024998]
- **Amoako-Atta, Ernest**; Asmaa, Abualhagag Ahmed; Szilvácsku, ps. “Dilemmas of Spatial Planning in Ecotourism Development: Ghana in Perspective”. In: Fodor, Marietta; Bodor, Péter (eds.) SZIENTific meeting for young researchers - Young Talents Meeting (ITT) Gödöllő, Hungary: Szent István University (2019) 353 p. pp. 20-34., 15 p. Conference Paper (Book Excerpt) | Scientific [31979512]
- Asmaa, Abualhagag ; István, Valánszki ; **Amoaka-Atta, Ernest**. “Statistical evaluation of pre-selection criteria for suitable land of outdoor recreation and tourism.” In: Fodor, Marietta; Bodor, Péter (eds.) SZIENTific meeting for young researchers - Young Talents Meeting (ITT) Gödöllő, Hungary : Szent István University (2019) 353 p. pp. 35-48. , 14 p. Conference Paper (Book Excerpt) | Scientific[31126358] [Admin approved]