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Research Article

Balancing Growth and Sustainability: Economic and Environmental Impacts of Beach Development in Cape Coast

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Abstract

This study investigates how beach development in Cape Coast, Ghana, shapes both local economic outcomes and coastal environmental conditions. Anchored in sustainable tourism development theory, the study evaluates the extent to which tourism-driven coastal transformations balance economic growth, environmental protection, and community benefits. A qualitative exploratory design was used, with purposive sampling applied to select thirty-two respondents, including managers, employees, and city officials. Data were gathered through in-depth interviews complemented by field observations. The findings indicate that beach development has generated meaningful economic benefits, particularly through employment creation and increased demand for local goods and services. Environmentally, several operators have adopted sustainable practices such as replanting coconut trees, introducing energy-efficient lighting, reducing single-use plastics, and integrating natural ventilation into facility design. These efforts have contributed to cleaner beach environments and improved visitor experiences. Nonetheless, substantial challenges remain. Financial limitations undermine consistent infrastructure upgrades and environmental management, while inadequate sanitation and waste collection systems contribute to persistent littering along the coastline. Weak regulatory enforcement by the Cape Coast Metropolitan Assembly further allows irregular development and poor waste disposal to persist. The study concludes that, although beach development is contributing positively to both economic and environmental conditions, its long-term sustainability depends on strengthened financial investment, improved waste management systems, and more consistent enforcement of coastal regulations. The insights generated may inform broader efforts to promote environmentally responsible coastal tourism in similar African settings.

Keywords

Tourism, Environment, Beach, Sustainable Development, Local Economic Development

1. Introduction

Since the turn of the twentieth century, sustainable tourism development has emerged as an important strategy for fostering local economic growth and ensuring long-term sustainability [66, 69, 71, 78]. All over the world, especially in

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the developed countries, governments and municipalities increasingly leverage their tourism assets to promote economic advancement and sustainable development [67, 88]. The United Nations World Tourism Organization (UNWTO) defines sustainable tourism as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities" [104].

Hall, Gössling, and Scott [39] note that the implementation of sustainable tourism principles necessitates the optimal utilization of environmental resources, which is integral to tourism development. This approach involves maintenance of essential ecological processes and conservation of natural heritage and biodiversity [4, 15]. Additionally, the UNWTO [104] indicates that this requires respect for the socio-cultural authenticity of host communities, preservation of their cultural heritage and traditional values, and fostering intercultural understanding and tolerance. It is instructive to note that sanitation services are fundamental elements that should be considered to assist tourism growth [3, 68]. The World Health Organization (WHO) defines sanitation as the provision of facilities and services for the safe disposal of human feces and urine. Perception shapes tourism decisions, and if visiting tourists are dissatisfied with a country's sanitary facilities, they are unlikely to return and may dissuade other potential tourists as well [27, 96]. One of the top causes of death in developing countries, according to Winters, Karim, and Martawardaya [118], is inadequate wastewater sanitation. It must be noted that water, sanitation, and hygiene problems are caused by poor sanitation, poor hygiene, and insufficient quantity and quality of clean water [23].

The United States Agency for International Development (USAID) [111] reports that poor environmental sanitation management (ESM) practices endanger the natural environment, including water bodies such as seas and lagoons, and their associated livelihood activities like fishing and salt manufacture. The UN Sustainable Development Goal 14 (SDGs 14) focuses on ensuring sustainable use of the oceans, seas, and marine resources for livelihood sustainability [108].

This goal recognizes that over 3 billion people rely on marine and coastal biodiversity for their livelihoods [112]. Thus, allowing poor Environmental and Social Management (ESM) to jeopardize the sustainability of the livelihoods of these populations is unacceptable. This calls for a global call for all countries to improve ESM for enhanced livelihoods [19]. Tourists look for safe destinations, and poor sanitation at tourist attractions may affect tourists' interest in visiting such areas [113, 114]. Given the importance of sanitation and the significant negative consequences of poor sanitation, governments, development partners, and the private sector must devote more attention to improving sanitation [98].

Cape Coast, the capital of the Central Region, is known for its diversified tourism offerings in Ghana. These tourism offerings include natural, cultural, and historical heritage. Beach development is being supported in Cape Coast in an effort to safeguard the beach from pollution caused by open defecation and sand wining. It should be emphasized that Cape Coast's beaches have become a breeding ground for open defecation and sand winning, resulting in environmental contamination and sea erosion, respectively. These acts are a threat to the livelihoods of the local people, property, and biodiversity. To prevent beach pollution and sand winning, the Cape Coast Metropolitan Assembly (CCMA) in 2018 launched a programme to lease beachfront property to private developers [18]. The aim was to turn the area into recreational and other leisure facilities to improve environmental sanitation and enhance tourism in Cape Coast. This study, therefore, seeks to assess the economic and environmental impacts of beach development in Cape Coast. Specifically, the study examines the environmental impacts of beach development in Cape Coast, evaluates the economic benefits of beach development in Cape Coast, analyzes sustainable tourism practices of beach businesses, and assesses the environmental challenges of beach development in Cape Coast. The innovation of this study lies in its contextual focus on Cape Coast, which uniquely combines historical heritage with emerging beach tourism within a fragile coastal environment. Unlike prior studies that examine sustainable tourism broadly, this research provides localized evidence from an African coastal city where economic development and environmental preservation intersect. By applying sustainable tourism theory in this context, the study fills a gap in understanding how local actors manage sustainability amid regulatory and financial constraints. The findings offer practical insights for promoting sustainable tourism in similar coastal regions across Sub-Saharan Africa, where balancing economic gains with environmental integrity remains a key challenge.

2. Literature Review

2.1. Tourism Development

Globally, the United Nations World Tourism Organization (UNWTO) reported 1.5 billion international tourist arrivals in 2019, marking a 4% increase from the previous year and reinforcing tourism's status as a leading economic sector [108, 115]. Tourism significantly contributes to economic revenue, regional development, and employment. In 2017, the sector generated US$7.6 trillion, representing 10.2% of the global GDP, and provided 292 million jobs [67, 78]. An increase in tourism inflow contributes to higher revenue. The tourism sector in Ghana has experienced significant growth, attracting both domestic and international travellers. According to the World Travel and Tourism Council (WTTC), in 2017, tourism's total contribution to Ghana's GDP was GH₵ 12,573.3 million (US$1,335.5 million), accounting for 6.2% of the GDP [121]. In 2024, Ghana's tourism sector experienced significant growth, accounting for $4.8 billion in revenue and 1.288 million international visitors [122]. In order to maintain the growth of tourism, it is imperative to ensure amenities and

adequate access to public facilities and a serene environment, including the development of sanitation services [86, 109].

2.2. Beach Sanitation

Despite efforts by various countries to improve sanitation, poor environmental sanitation practices, particularly open defecation and indiscriminate waste disposal, persist in many developing countries, including Ghana [71-73, 76]. There is a growing concern about the threat to the sustainability of livelihoods, particularly water-based and tourism-associated livelihoods in coastal communities, which provide sustenance for the teeming coastal poor [28, 52, 89]. Small and Nicholls [89] view this as a significant concern, given the importance of coastal livelihoods in the development process. It must be noted that coastal communities attract high population growth due to their strategic location [50, 77]. Coastal areas interface between land and sea, offering livelihoods through marine trade and transport, fishing, salt production, and tourism [28, 114].

Kruijssen and Asare [50] also highlight the interconnectedness between the natural environment and the livelihoods of the economically vulnerable coastal population. Kruijssen and Asare [50] indicate that, as a result of the economic vulnerability of coastal populations, the government and the local people should prioritise environmental issues in coastal communities. Specifically, in the context of tourism, water and sanitation infrastructure are crucial factors that impact the success of a tourist destination [50, 80]**.** According to the Environmental Protection Agency [33], inadequate sanitation facilities in Cape Coast can discourage potential tourists and result in a loss of tourism earnings. IWA [45] adds that poor sanitation can lead to health-related issues that further impact tourism. Globally, it is estimated that tourism-related economic losses from inadequate sanitation amount to $266 million, with losses due to gastrointestinal illnesses among international tourists [103, 115, 116].

It is thus vital for any country that wishes to develop its tourism industry to address sanitation issues. To ensure the success of tourism, it is essential to prioritise hygiene and sanitation for all [51, 52]. This includes the efficient use of water, proper wastewater management, and pollution control, as well as the implementation of appropriate safety measures [53, 54, 65]. The World Tourism and Travel Council (WTTC) [122] indicates that inconsistencies in sanitation standards can impact both tourism and the local community negatively. This makes it crucial to develop effective infrastructure and monitoring systems to maintain hygiene and sanitation standards throughout the value chain [122]. Recognizing the socioeconomic implications of inadequate sanitation, Ghana has called upon sanitation stakeholders, including relevant ministries, departments, agencies, and the private sector, to prioritise proper sanitation practices across all communities, with a particular focus on coastal and tourist attraction areas [84]. In 2017, the Cape Coast Metropolitan Assembly inaugurated the Tourism and Sanitation Ambassadors to promote improved sanitation and support sustainable tourism initiatives in the metropolis [18].

2.3. Sustainable Coastal Tourism Development

Coastal and marine tourism has emerged as a critical economic sector in sub-Saharan Africa, contributing substantially to regional GDP and employment. Research indicates that coastal tourism accounted for 4.8% of GDP in West Africa by 2021, exceeding the regional average and demonstrating its economic significance [110, 119]. The African Union's projections suggest that the value of coastal tourism will rise dramatically from US$80 billion in 2018 to US$140 billion by 2030 and US$180 billion by 2063, positioning it as a key driver of economic diversification [1, 99]. Recent scholarship has highlighted both the opportunities and challenges inherent in coastal tourism development. Hall et al. [41] examined the role of Blue Flag status in promoting sustainable coastal tourism in South Africa's KwaZulu-Natal region, demonstrating how environmental certification programs can enhance destination competitiveness while ensuring environmental protection. Their research underscores the importance of integrating Sustainable Development Goal (SDG) 14, which aims to conserve and sustainably use ocean resources, with local tourism development strategies. The sustainability discourse in African coastal tourism has evolved significantly. Mtapuri et al. [64] provided critical insights from South Africa and the broader continent, problematizing the concept of sustainable tourism based on African experiences. Their analysis reveals that while tourism generates economic growth and job creation, it can simultaneously impact socio-cultural and ecological dimensions of destinations, necessitating careful management to avoid environmental degradation and disruption to local communities.

2.4. The Blue Economy Framework and Economic Development

The blue economy has emerged as a transformative framework for sustainable coastal development in sub-Saharan Africa. The African Union's Blue Economy Strategy, with its Implementation Plan for 2021-2025, provides a comprehensive blueprint focusing on five thematic areas: fisheries and aquaculture; shipping and maritime transport; coastal and marine tourism with climate resilience; sustainable energy and mineral resources; and policies, institutional governance, and employment creation [1]. Current estimates suggest that Africa's blue economy contributes approximately US $300 billion annually, supporting 49 million jobs across fisheries, tourism, and shipping sectors. Projections indicate growth to US$405 billion by 2030, driven significantly by coastal tourism (US$100 billion) and sustainable aquaculture expansion. The African Union envisions US$576 billion by 2063, though some bluetech-specific

forecasts project even more ambitious growth of US$1.5 trillion by 2050 through innovations in marine renewables and biotechnology [1, 14].

Regional implementation of blue economy strategies has shown varied progress. The East African Community (EAC) Blue Economy Strategy for 2021/22-2025/26 emphasizes infrastructure development, human capital development for long-term skills, and consolidation of the EAC Common Market. The strategy recognizes the interconnectedness of the blue economy with other economic sectors and its responsiveness to emerging frontier sectors, with particular attention to gender mainstreaming, food security, poverty alleviation, and job creation [32]. Zanzibar provides a compelling case study of blue economy operationalization. Following President Hussein Ali Mwinyi's 2020 election campaign centered on blue economy development, the semi-autonomous region established the Ministry of Blue Economy and Fisheries and embedded blue economy principles in its Development Vision 2050. Tangible results include positioning Zanzibar as Africa's leading seaweed producer, surpassing 12,594 tons in fiscal year 2021/22, while attracting US$1.9 billion in tourism-related investments between 2021 and 2024, creating 9,535 jobs. The success demonstrates how political commitment, strategic policy frameworks, and public-private partnerships can translate blue economy concepts into measurable socioeconomic outcomes [70]. The West African blue economy context presents both opportunities and challenges. Coastal fisheries employ 6.7 million people in the region, making them a critical source of income. However, overexploitation of marine resources and degradation of nursery habitats threaten the gradual depletion of fish stocks.

Water pollution represents another major aspect of environmental degradation affecting marine, coastal, and freshwater areas along the West African coast. These challenges necessitate integrated management approaches that balance economic development with ecosystem conservation [29, 96].

2.5. Environmental Degradation and Coastal Ecosystems

The environmental consequences of beach tourism development have become increasingly apparent as coastal ecosystems face unprecedented pressures. Holden [43] documents the widespread degradation of coastal habitats, including mangroves, seagrass beds, and coral reefs, attributable to tourism infrastructure expansion. Their research across Latin American coastal regions reveals that approximately 35% of mangrove loss can be directly linked to tourism development projects, with cascading effects on biodiversity, fisheries productivity, and coastal protection services. Beach erosion represents one of the most visible environmental impacts of coastal tourism development. Luijendijk et al. [56] utilize satellite imagery analysis to demonstrate that 24% of the world's sandy beaches are eroding at rates exceeding 0.5 metres per year, with tourism infrastructure development identified as a significant contributing factor. The construction of hard structures such as seawalls, groins, and beachfront hotels disrupts natural sediment transport processes, often exacerbating erosion in adjacent areas and creating a cycle of increasingly intensive engineering interventions [83, 85].

Marine pollution associated with beach tourism has emerged as a critical environmental concern. Rangel-Buitrago et al. [79] investigate the relationship between tourism intensity and marine litter accumulation, finding a strong positive correlation between visitor numbers and plastic pollution levels on beaches. Their study of Colombian coastal areas reveals that tourism-related activities contribute up to 80% of beach litter during peak seasons, with microplastic contamination persisting long after visible debris is removed. Furthermore, Zielinski and Botero [124] examine the impacts of recreational activities on water quality, demonstrating that increased bather loads, sunscreen chemicals, and sewage discharge from tourism facilities contribute to nutrient enrichment and the proliferation of harmful algal blooms.

2.6. Climate Change Vulnerability and Adaptation

The intersection of climate change and beach tourism development presents complex challenges for coastal destinations. Scott et al. [87] project that rising sea levels, increased storm intensity, and changing precipitation patterns will fundamentally alter the viability of many beach tourism destinations by mid-century. Their climate risk assessment of global beach resorts indicates that approximately 49% of current beachfront properties face significant flooding risks under moderate emissions scenarios, with potential economic losses exceeding $570 billion if adequate adaptation measures are not implemented. The carbon footprint of beach tourism represents both a contributor to and a victim of climate change. Holden [43] quantifies the greenhouse gas emissions associated with global tourism, finding that beach and coastal destinations account for approximately 22% of tourism-related emissions when transport, accommodation, and activities are considered. This creates a paradoxical situation whereby the industry, dependent on stable coastal environments, simultaneously contributes to their destabilization.

Gössling and Higham [38] argue that this contradiction necessitates fundamental restructuring of beach tourism towards low-carbon models, including reduced air travel dependence, renewable energy adoption, and circular economy principles. Adaptation strategies for beach tourism in the context of climate change have received increasing scholarly attention [48, 50]. Mycoo [68] examines nature-based solutions for coastal resilience, demonstrating that the restoration of coastal ecosystems such as coral reefs and mangroves can provide cost-effective protection against storm surges whilst simultaneously supporting tourism appeal. Her analysis of Caribbean destinations suggests that investing in ecosys-

tem-based adaptation yields benefit-cost ratios of up to 7: 1 when tourism revenues, property protection, and ecosystem services are collectively considered. Similarly, Sajjad et al. [82] advocate for integrated coastal zone management approaches that balance tourism development with climate adaptation requirements, emphasizing the need for participatory planning processes that incorporate local knowledge and stakeholder perspectives.

2.7. Economic Impacts of Tourism

Economic sustainability in tourism emphasizes long-term viability over short-term profit maximization [10, 12]. Therefore, it is critical to balance the relationship between society and the environment [107]. To achieve economic sustainability, it is important to implement fair social policies and ensure the prudent use of environmental resources. Enhancing tourism within a country or region presents significant economic opportunities, particularly in poverty reduction through income and job creation [109]. However, if local needs and concerns are not considered in tourism development and management, the anticipated economic benefits may be substantially diminished [5, 34]. It must be noted that the primary economic benefits of tourism include employment creation, infrastructure development, and the generation of revenue and income [8, 9]. Thus, an increase in tourism-related employment can enhance the purchasing power of employees and their families, thereby stimulating local economies [109]. Additionally, financial benefits may extend beyond the immediate destination. For instance, cruise ship employees often remit their earnings to their home countries, contributing to economic benefits abroad [13, 44].

Furthermore, like other industries, the tourism industry requires a well-developed infrastructural network encompassing transportation systems and social and cultural facilities such as restaurants, hospitals, theaters, and entertainment centers**.** Alemayehu, Kumbhakar, and Lien [2] indicate that direct benefits of tourism are evident in expenditures on meals, excursions, souvenirs, and tips at the traveller's destination**.** According to Kevin, Mengjie, and Wenming [49], tourists contribute to local sales, tax revenue, employment, profits, and income. The most direct impacts must occur in sectors like accommodation, restaurants, transportation, entertainment, and retail [49]. According to the UNWTO [106], tourism influences various economic sectors through secondary impacts. The economic impact of tourism typically focuses on changes in local sales, income, and tourism-related employment [91, 107]. The effects of tourism must extend beyond specific events and facilities, manifesting as changes in human behaviour resulting from interactions between agents of change and the subsystems in which they operate [5, 35]. Anderson [5] adds that the interconnections among different tourism industries affect economic, physical, and social dimensions. making them complex to interpret, report, measure, and plan. The capacity limits of a destination's economic, physical, and social subsystems determine the extent and direction of tourism impacts [14, 29, 100].

Dwyer, Forsyth, and Dwyer [31] note that the negative impacts of tourism can exceed acceptable limits, and it must be noted that the physical and social impacts of tourism, as compared to economic impacts, are difficult to measure. This is because physical and social impacts are often intangible and non-comparable, making them difficult to quantify or numerically analyze [31, 61]. Pearce [76] argues that the size, diversity, and vitality of the economy, the level of tourism, local involvement, and external influences further influence the impact of tourism on destinations such as Ghana.

2.8. Environmental Impacts of Tourism

Tourism can have significant negative impacts on the environment, sometimes leading to irreversible damage [5, 8]. In extreme cases, prolonged environmental degradation has destroyed the very features that once attracted tourists, causing travel companies and their customers to abandon these destinations in search of new, unspoiled locations [36, 92]. [92] indicates that unplanned tourism can lead to landscape degradation and biodiversity loss through the conversion of natural habitats and damage to coastal areas, forests, coral reefs, and other ecosystems. Areas of high natural value, such as coastal regions, alpine zones, freshwater ecosystems, and polar coasts, are particularly vulnerable to degradation [43]. In addition, Bohdanowicz [11] states that pollution poses significant challenges, particularly in coastal tourism areas. Rapid development in these regions often overwhelms local wastewater treatment and disposal infrastructure, leading to water pollution that adversely affects aquatic life and the health of both tourists and residents who rely on these waters [6, 12, 93].

Additionally, tourism contributes to environmental degradation through resource consumption and waste generation by operators and tourists [98]. Transportation associated with tourism, especially air travel, has a global impact by emitting carbon dioxide and other greenhouse gases, thereby contributing to climate change [15, 39]. Despite these environmental costs, tourism can also offer benefits. Revenue from tourism can significantly contribute to the protection of areas such as coral reefs and forests [108]. Ecotourism helps promote eco-friendly leisure practices, and corporate social responsibility initiatives encourage the conservation of water, energy, and the reduction of waste generation [95, 101]. While tourism, like any industry, inevitably impacts the environment, prioritizing the minimization of adverse effects is essential, even if complete elimination is unattainable [37, 108].

2.9. Environmental Policy and Coastal Management

Environmental policy frameworks for coastal management in sub-Saharan Africa have undergone significant evolution in

recent years, though implementation challenges persist. Dada et al. [24] provided a comprehensive assessment of coastal zone changes in West Africa, highlighting that rapidly changing environmental conditions coupled with increasing population density create substantial adaptation challenges. Their research identified that public governance frequently fails to support adaptation efforts, exacerbated by the lack of comprehensive legal frameworks for land use planning and environmental protection coordination. The West Africa Coastal Areas (WACA) Program, supported by the World Bank and multiple international partners, represents a significant multilateral initiative addressing coastal erosion and flooding. The program recognizes that approximately 56% of West Africa's GDP is generated in coastal provinces where one-third of the population resides, making coastal resilience essential for regional economic stability [120].

WACA's approach emphasizes coordinated regional action, combining policy harmonization with technical solutions to manage erosion hotspots and maintain ecosystem services that support livelihoods. Integrated coastal management remains a critical policy priority. Research from 2025 on Central Africa's estuarine populations documented significant ecosystem decline, with Atlantic Forest decreasing by 5.5% and mangroves by 9.5% between 1986 and 2018. Coastal erosion affects 41.7% of the Wouri estuary's coastline, with maximum retreat rates reaching 20.75 meters per year. These findings underscore the urgency of implementing evidence-based policies that incorporate local knowledge and strengthen community resilience [17, 35].

Coastal vulnerability assessments have become essential tools for policy development [81, 84]. Jackson et al. [46] conducted an integrated assessment of coastal exposure and social vulnerability in East Africa, covering Mozambique, Kenya, and Tanzania. Their methodology produced spatial data layers identifying 17 out of 86 coastal districts as 'areas of priority concern,' with four districts in southern Mozambique showing critical exposure levels where over 90% of shoreline faces high-risk conditions. This evidence-based approach enables policymakers to prioritize interventions and allocate resources strategically [20, 40, 47].

Recent research has also focused on habitat sensitivity and ocean acidification along the West African coast. A 2023 study assessed environmental challenges based on surface temperature, pH, chlorophyll, particulate organic carbon, and carbonate concentrations between 2018 and 2023. The research identified two distinct focal points, the Togo-Nigerian coastal stretch and the Sierra Leone to Mauritania region, experiencing lower pH trends indicative of acidification, with profound implications for marine ecosystems, fisheries, and coastal communities dependent on these resources.

2.10. Challenges to Sustainable Tourism Development

Dodds and Holmes [30] indicate that beach development, especially in developing countries, poses significant challenges to sustainable tourism development. This includes financial and regulatory constraints. McLoughlin and Hanrahan [62] and Sharpley [88] indicate that resource constraints are one of the practical challenges of implementing sustainable development in tourism. It must be noted that sustainable tourism projects often require substantial upfront investment in infrastructure, training, and environmental protection, which may be lacking, especially in developing regions [17, 62]. McLoughlin and Hanrahan [62] add that many popular tourist destinations lack the requisite infrastructure to support sustainable tourism, including transportation, sanitation, and waste management systems.

Tourism often results in large quantities of waste, especially single-use plastics, which can be challenging to manage sustainably [20, 22]. This problem is exacerbated in areas with limited waste management infrastructure, where littering and pollution can harm local ecosystems and reduce the appeal of natural sites [105, 109]. According to Dangi and Jamal [25], limited financial resources can prevent the implementation of sustainable practices and hinder the growth of tourism in underserved areas. In addition, [62, 90] asserted that expenditure on enhanced hygiene and safety measures may lead to increased operational costs and complexity, altering tourist behaviour and preferences. Furthermore, Dangi and Jamal [25] state that it is challenging to establish and monitor environmental, economic, and social impacts of tourism, particularly in remote or resource-poor areas. Özgit and Akanyeti [74] argue that without clear, consistent metrics and enforcement mechanisms, sustainability initiatives may have limited impact or go unregulated altogether.

3. Theoretical Review

The study is guided by the sustainable tourism development (STD) theory. This theory emphasizes the balance between tourism growth and the protection of local environments and cultures. It aims at ensuring that tourism benefits the host community and minimizes environmental degradation [16, 97]. Butler [16] underscores the importance of balancing tourism's economic benefits with environmental protection and cultural preservation. Hamenoo [42] indicate that sustainable tourism focuses on how tourism can be developed to benefit local communities while minimizing negative environmental and social impacts, which is relevant to understanding the framework used by beach developers in Cape Coast.

In the context of beach development in Cape Coast, the sustainable tourism development theory provides a framework to assess how tourism can positively impact local economies, support cultural preservation, and encourage environmentally friendly development. It must be noted that tourism in Cape Coast is centered on historical landmarks, rich cultural heritage, biodiversity offerings, and coastal ecosystems [123]. Yeboah and Ashie [123] indicate that his-

torical landmarks, rich cultural heritage, biodiversity offerings, and coastal ecosystems attract numerous tourists to Cape Coast annually, contributing to local economic development. The natural attractions, such as the beaches, the lagoon, and the sea, are at risk from human activities, including beach development. It is important to note that the beaches serve as a place of relaxation for both the local people and tourists [21, 22]. However, indiscriminate beach development, open defecation, and sand winning are threats to the natural environment.

Furthermore, Bohdanowicz [11] states that pollution poses significant challenges, particularly in coastal tourism areas. Pollution of the beaches will not only lead to health challenges but also a decline in tourists' numbers since an attractive environment influences tourism decision-making. Thus, issues of sustainability in tourism development are critical for long-term economic growth and conservation efforts [97]. STD theory is instrumental in assessing how tourism can contribute to local economic development while protecting fragile environments. This includes sustainable beach management practices, cultural heritage conservation, and environmentally friendly tourism infrastructure. STD theory also highlights the need for strong institutional and financial support to ensure the sustainability of tourism initiatives [13, 26]. In Cape Coast, issues such as weak enforcement of environmental regulations and limited funding for conservation and infrastructure development pose challenges to achieving sustainable outcomes. The theory provides a framework for identifying policy gaps and recommending strategies to achieve sustainability.

4. Research Methodology

This section presents the methodology employed in the study, detailing the research design, study area, population, and data collection and analysis procedures. The study adopted a qualitative approach with an exploratory research design, which was deemed appropriate for gaining in-depth insights into the lived experiences and perspectives of participants [94, 117]. A non-random purposive sampling technique was employed to select thirty-two (32) key informants, including city officials, beach facility developers or managers, employees, and representatives of environmental non-governmental organisations. The sample size was justified on the grounds of qualitative adequacy, as it allowed for the inclusion of diverse yet information-rich participants with direct knowledge of beach development in Cape Coast, while ensuring data saturation was reached [85].

Data were collected through unstructured interviews and direct observations at selected beaches to corroborate participants' accounts. Audio and video recordings were made with the consent of participants to ensure the accuracy and completeness of data. The qualitative approach and purposive sampling were suitable for the study's objectives, as they facilitated the collection of detailed and context-specific insights that quantitative methods might not capture [10]. The interview data were analysed using thematic analysis, following [10] six-step framework. Transcripts were first read multiple times to ensure familiarity with the data, after which open coding was conducted to identify recurrent patterns and ideas. Codes were then refined, categorized, and merged into broader themes that reflected the economic, environmental, and sustainability dimensions of beach development. Manual analysis was preferred to maintain close engagement with the data and to allow interpretative depth. Despite minor limitations such as restricted access to some sites and the occasional unavailability of key informants, these challenges were mitigated through follow-up visits and the cooperation of beach developers.

5. Results and Discussions

The main objective of this study is to assess the impact of beach development in Cape Coast. Specific objectives of the study are to examine the environmental benefits of beach development in Cape Coast, to evaluate the economic benefits of beach development in Cape Coast, to analyze sustainable tourism practices of beach businesses in Cape Coast, and to assess the environmental challenges of beach development in Cape Coast. A total of thirty-two (32) respondents comprising different stakeholder groups took part in the study. Views of respondents were solicited using interviews. Content and thematic analyses were done for the various research objectives.

5.1. Economic Benefits of Beach Development

In an interview with one of the managers, it was unequivocally affirmed that beach development has had a profoundly positive impact on the local economy. The respondent explained that the developments had given employment opportunities to several young people. I can count not less than one hundred employees working at beaches from Lush on the Coast to Tropical Beach. Without these developments, the young ones may be unemployed.

We are creating jobs. I have 35 employees, and this goes up during occasions. Apart from employment, we have been buying ingredients from the local markets for our food. This is huge to the local economy, one developer, indicated. According to respondents, tourists play a vital role in maintaining the beach's sustainability through financial and promotional contributions. Financially, tourists' payments for services and goods generate revenue that is channeled into renovations and transformations, ensuring the beach's infrastructure and amenities remain upgraded. Additionally, tourists' social media presence proves invaluable as they share captivating photos and positive experiences, effectively promoting the beach to a broader audience. The findings on the economic benefits of beach development support those of [30]. They assert that sustainable beach tourism often con-

tributes to local economies by generating employment, increasing income for local vendors, and fostering community investment in natural resource conservation.

The findings on the economic benefits of beach development align well with the principles of sustainable tourism development theory. According to this theory, tourism should be developed in a way that balances environmental protection, social equity, and economic benefits, ensuring that current and future generations can both benefit from and contribute to these tourism assets [101, 104].

Dodds and Holmes [30] highlight that sustainable beach tourism contributes positively to local economies by creating employment, boosting local vendor income, and fostering community investment in natural resource conservation. This supports the sustainable tourism model, which prioritizes long-term economic resilience and community well-being over short-term financial gains. Sustainable tourism development theory advocates for tourism practices that support local communities, respect cultural and natural assets, and minimize negative environmental impacts [30].

5.2. Environmental Benefits of Beach Development in Cape Coast

According to the responses gathered from customers and workers at the beach facilities, a significant improvement in sanitation has been observed at the beaches from previous years [75, 77, 80]. The overwhelming consensus is that the beaches from Sandy to Tropical Beaches have undergone a remarkable transformation, with the beach now being notably cleaner than in previous years. This positive shift is attributed to the developments of the beaches aimed at providing better facilities and services for visitors and tourists [43]. In addition, enhanced maintenance efforts by facility owners, increased awareness, and potentially improved waste management strategies have resulted in a clean beach. The stark contrast between past and present conditions suggests that targeted initiatives have been effective in addressing long-standing sanitation concerns. As a result, the beach's aesthetic appeal and overall user experience have been significantly enhanced, contributing to a more enjoyable and healthier environment for both locals and tourists alike.

One manager stated that beach development has contributed to improved sanitation in the coastal area. In the past, people from the nearby communities openly defecated at the beaches, but our work has protected the beaches and made them clean for our clients.

Another respondent added that the improved sanitation infrastructure and facilities have eradicated open defecation on the beach, vastly enhancing the community's health and dignity. Secondly, the beach's revitalization has transformed it into a family-friendly hub, effectively eliminating illicit activities such as cigarette smoking and substance abuse. These transformations have not only elevated the beach's aesthetic appeal but also fostered a safer, more wholesome environment, conducive to community growth and economic development. According to an official from CCMA, the main motive behind the beachfront development was to curb the issues of open sanitation and sand winning at the beach, and to also create jobs for youth.

Observation of the sanitation situation conducted by the researchers at the beaches confirmed the interviews conducted for this study. It was observed that beach developments had reduced open defecation along the beaches. It must be noted that in the past, these areas served as a comfort zone for defecation by residents. The findings of this study confirm the work of UNWTO [108], which argued that the income generated from tourism zones can comprehensively contribute to the protection of protected areas, such as coral reefs and forests. In addition, ecotourism helps promote eco-friendly leisure practices, and corporate social responsibility introduces standards to conserve water, electricity, and reduce waste generation [102]. Figure 1 shows the greening of Hutchland Beach Resort.

Photo credit: Field study, 2024

Figure 1. *Greening of Hutchland Beach Resort.*

The findings of this study align closely with sustainable tourism development theory, which explains that when tourism is properly managed, it can promote environmental preservation, support social equity, and sustain economic growth for host communities, particularly in ecologically sensitive areas [7]. According to sustainable tourism development theory, income generated from tourism, especially in protected areas, can be channeled toward conservation efforts, benefiting both the environment and the local economy. It must be noted that ecotourism encourages leisure activities that respect and preserve the environment, minimizing ecological footprints and fostering appreciation for natural spaces.

5.3. Sustainable Tourism Practices of Beach Businesses

Beach businesses in Cape Coast have adopted various sustainable tourism practices to minimize environmental impacts, promote local culture, and benefit the community. For example, beach developers have planted new coconut trees to replace old ones, in addition to the use of plants for landscaping. A respondent indicated that they use energy-efficient lighting and encourage natural ventilation to reduce energy use. In addition, the beaches minimize single-use plastics by offering alternatives like reusable bags, straws, and containers. In an interview with a respondent, she indicated that regular clean-up activities at the beaches have improved and kept the beaches litter-free.

"In the past, these places were all littered and had people defecating here uncontrollably. These developments have made the beaches clean and a good place for relaxation for locals and tourists who visit Cape Coast, a tourist indicated.

In addition to environmental management, respondents indicated that beach facilities use sustainable infrastructure and design. Buildings are eco-friendly and use sustainable materials, and create low-impact infrastructure that blends with the natural environment. Observations show that beaches have planted plant species to maintain the natural biodiversity. In terms of staffing, managers of the beach facilities indicated that they prioritize hiring locals to support the local economy. They also stated that they collaborate with local vendors, artisans, and food suppliers to promote authentic local experiences.

In a response to some of the sustainable practices, one manager highlighted the importance of preserving and promoting Ghanaian cultural heritage, particularly for foreign tourists. According to him, when visitors express interest in Ghanaian culture, the beach's staff take great pride in sharing their knowledge. *My staff enthusiastically explains the significance of Adinkra symbols, the preparation methods and cultural significance of local cuisine, and the meanings behind traditional names. This cultural exchange not only enriches the tourists' experience but also helps to foster cross-cultural understanding, promote national pride, and contribute to the development of a culturally conscious tourism industry.*

The study revealed that customers enjoy a diverse range of activities during their visits to the beaches. According to them, they go there for relaxation, soaking up the sun's warm rays through sunbathing or simply unwinding in the tranquil atmosphere. Others indulge in aquatic pursuits, such as moving along the coast and observing fishing, which provide thrilling experiences amidst the ocean's vastness. These varied activities cater to diverse interests, ensuring beaches offer an idyllic getaway for those seeking leisure, excitement, or rejuvenation. Figure 2 shows sustainable tourism practices at Heritage Beach.

Photo credit: Fieldwork, 2024

Figure 2. *Photograph of sustainable beach management practices at Heritage Beach.*

The results of this study align with the works of [2, 15, 30], who indicate that sustainable tourism development often contributes to local economies by generating employment, increasing income for local vendors, and fostering community investment in natural resource conservation, as espoused by the sustainable tourism development theory. The theory emphasizes tourism's potential to foster long-term economic, social, and environmental benefits for host communities [64, 100]. Mthiyane, Nojiyeza, and Mofokeng [65] noted that sustainable tourism can significantly contribute to local economies by generating employment, increasing income for local businesses, and encouraging community investment in the conservation of natural resources.

Challenges to sustainable beach development and environmental sustainability

All the managers who took part in this study mentioned that financial constraints pose the most significant threat to the beach's environmental sustainability. The managers emphasized that inadequate funding hampers efforts to maintain optimal sanitation, upgrade infrastructure, and implement effective waste management systems. Limited financial resources also restrict the beach's ability to invest in essential amenities and ensure the long-term viability of conservation initiatives. According to one manager: c*onsistent renovation and maintenance to keep the natural biodiversity, coupled with the use of eco-friendly buildings and customer relationship management, hold the key to further improving the beach's appeal and sustainability. Regular upgrades to infrastructure, amenities, and services to ensure a seamless and enjoyable experience for visitors.* This proactive approach addresses potential issues before they become major problems, maintaining the beach's pristine condition and aesthetic appeal, but it is very expensive to implement.

In addition, poor sanitation and waste management were found to be one of the challenges to sustainable beach development and environmental sustainability. Respondents indicated that beach facilities generate a lot of plastic waste, which is not properly collected and disposed. Observations at the beaches to validate responses revealed that plastic waste was spread all over the place. Some of them may end up in the sea. One respondent indicated: *"I think the main challenge we have here is sanitation and waste management. Water supply is a problem, and we are unable to keep pace with the plastics that are generated here". One, it is expensive to manage waste, and again, because the beach is free access, we are unable to control access and waste disposal along the beach*.

Photo credit: Fieldwork, 2024

Figure 3. *Photographs of indiscriminate waste management/pollution at the beach.*

Regulatory constraints further complicate sustainable tourism efforts by potentially limiting the implementation of policies and practices that support sustainability [63]. The study revealed that some beach developers do not have building permits, and enforcement of appropriate building and sanitation bylaws remains weak. A respondent had this to say:

Most of the facilities here do not have permits. It has been back and forth between the City and the Lands Commission on issuing permits to developers. This has weakened enforcement programmes because we don't know whether we are allowing them to develop or not.

It is important to note that complex permitting processes, inconsistent policy enforcement, and limited government support can discourage tourism operators from adopting sustainable initiatives. This undermines long-term sustainability and environmental integrity. This finding corroborates the work of [25, 62], who state that limited financial resources and regulatory constraints can pose a challenge to the implementation of sustainable practices. The finding, which suggests that limited financial resources and regulatory constraints can hinder the implementation of sustainable practices, aligns with key tenets of sustainable tourism development theory [55, 57]. This theory advocates for a balanced approach to tourism that fosters economic, social, and environmental sustainability. However, it also acknowledges the challenges associated with achieving this balance, particularly in terms of resource availability and institutional support. These challenges are well-documented within sustainable tourism development theory, which posits that for sustainable tourism to succeed, both financial investment and a supportive regulatory environment are essential [56, 58]. Without adequate funding, communities and businesses may struggle to implement sustainable infrastructure, invest in eco-friendly technologies, or maintain conservation efforts, which are vital to protecting the long-term viability of tourism sites [59, 60].

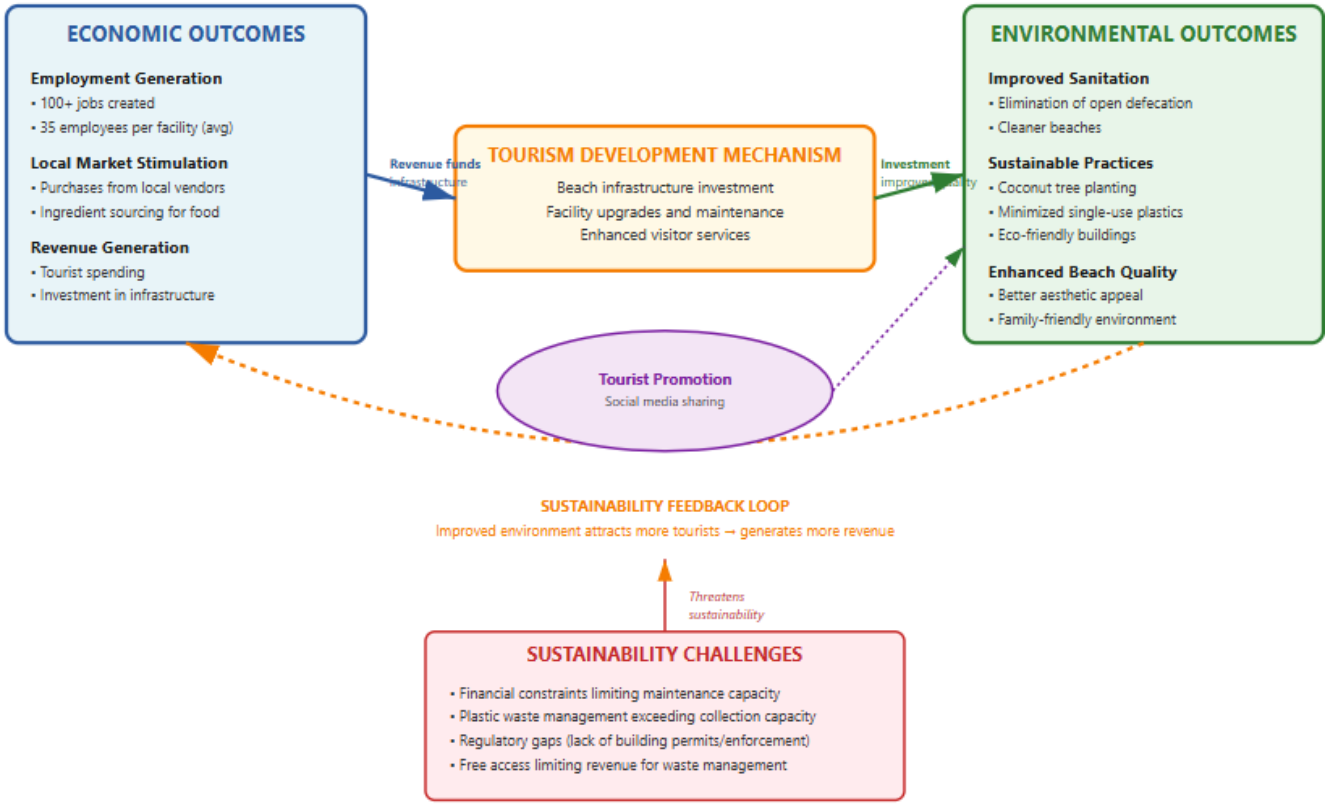

Figure 4. *Economic and environmental linkages in beach development.*

The figure illustrates the interconnected relationship between economic and environmental outcomes in Cape Coast beach development. Economic outcomes include employment generation (100+ jobs), local market stimulation through vendor purchases, and revenue from tourist spending. Environmental outcomes encompass improved sanitation (elimination of open defecation), sustainable practices (tree planting, reduced plastics, eco-friendly buildings), and enhanced beach quality. These two domains are linked through tourism development, infrastructure investment, and facility upgrades serve as the mechanism connecting financial benefits to environmental improvements. The critical dynamic is the sustainability feedback loop: improved environmental quality attracts more tourists, generating increased revenue that funds further improvements, creating a self-reinforcing cycle. Tourist social media promotion amplifies this effect by

providing organic marketing that brings additional visitors. However, several challenges threaten this positive cycle: financial constraints limiting maintenance capacity, plastic waste generation exceeding collection systems, regulatory gaps in building permits and enforcement, and the free access model that restricts revenue for waste management. The figure essentially demonstrates how beach development creates mutually reinforcing economic and environmental benefits when functioning well, while simultaneously identifying the structural vulnerabilities that could disrupt long-term sustainability if left unaddressed.

Table 1. *Summary of Key Themes from Interviews on Beach Development in Cape Coast.*

Theme	Key Findings	Supporting Evidence (Interview Excerpts / Observations)	Implications
Economic Benefits	Beach development has created employment and stimulated local economies.	"I can count not less than a hundred employees working at beaches from Lush on the Coast to Tropical Beach… Apart from employment, we have been buying ingredients from the local markets."	Increased youth employment, enhanced local business activities, and improved household incomes.
Environmental Improvements	Sanitation and environmental conditions at beaches have improved markedly.	"In the past, people from nearby communities openly defecated at the beaches, but our work has protected the beaches and made them clean."	Cleaner beaches attract more tourists, reduce health risks, and foster environmental stewardship.
Sustainable Tourism Practices	Adoption of eco-friendly practices, local sourcing, and cultural preservation initiatives.	"We use energy-efficient lighting, avoid single-use plastics, and engage locals in staffing and supply."	Reinforces sustainable development goals, enhances cultural identity, and promotes responsible tourism.
Cultural Preservation	Cultural heritage is actively shared with visitors to promote national identity.	"My staff enthusiastically explains the significance of Adinkra symbols and the preparation of local cuisine."	Strengthens cross-cultural understanding and enriches visitor experiences.
Challenges: Financial Constraints	Limited funds hinder maintenance, waste management, and eco-friendly innovation.	"Consistent renovation and eco-friendly maintenance are expensive to implement."	May lead to deterioration of facilities and reduced sustainability outcomes.
Challenges: Sanitation and Waste Management	Poor waste disposal and uncontrolled access exacerbate environmental degradation.	"Plastic waste is spread all over the place… some of them will end up in the sea."	Threatens marine ecosystems, beach aesthetics, and tourism appeal.
Challenges: Regulatory Constraints	Weak enforcement and permit issues limit proper development control.	"Most facilities here do not have permits… enforcement programmes are weakened."	Undermines long-term sustainability and accountability in coastal management.

6. Conclusions and Recommendations

The current study adds to the body of knowledge on the environmental and economic impacts of beach development. Based on the findings of this study, the following conclusions have been drawn. Beach development in Cape Coast has a positive impact on the local economy. These developments have given employment opportunities to several young people. It has also served as a boost to local businesses through the purchase of ingredients from local markets for the preparation of food. Again, beach development contributes to sustainable tourism practices by way of promoting good environmental practices and the promotion of local culture. However, poor sanitation and waste management are a threat to environmental sustainability. In addition, financial constraints pose a serious threat to the beach's environmental sustainability. It must be noted that inadequate financial constraints hamper efforts to maintain optimal sanitation, upgrade infrastructure, and implement effective waste management systems. In addition, the lack of enforcement on the part of the Cape Coast Metropolitan Assembly contributes to poor waste manage-

ment at the beaches.

It is recommended that beach developers should be encouraged to promote locally sourced goods and services to help boost the local economy while creating jobs. They should also educate tourists and the local people on minimizing litter, respecting nature, and leaving the beach clean. Signage and awareness campaigns can encourage visitors to practice responsible waste management. In addition, city authorities should enforce zoning that designates specific areas for beach businesses, recreation, and conservation. This can limit overcrowding and overdevelopment, helping maintain environmental quality. Furthermore, beach developers should collaborate with other private companies to secure funding for sustainable development projects. CCMA should encourage beach developers to look for sustainable funding models such as public-private partnerships and innovative revenue streams to support its development and preservation. Finally, the Cape Coast Metropolitan Assembly should prioritize waste management enforcement by deploying staff to regularly monitor and enforce regulations on littering, waste disposal, and sanitation practices.

7. Theoretical and Practical Implications

The study's findings contribute to the Sustainable Tourism Development Theory by illustrating how economic benefits and environmental protection can coexist in developing states. It must be noted that if beach development in Cape Coast is managed sustainably, it can foster both economic growth and environmental conservation. In addition, the study expands the theory by emphasizing cultural preservation as a key component of sustainability. By prioritizing Ghanaian cultural heritage and local employment, the study underscores the importance of social and cultural sustainability within the broader framework, reinforcing the theory's relevance in multicultural and developing settings. Also, the study notes that financial and regulatory challenges hinder sustainable tourism in developing regions. These findings can add a critical dimension to the theory by underscoring the need for adequate funding and local government enforcement as essential supports for sustainable tourism.

In terms of practical implications, the study suggests that stronger financial support and local regulatory enforcement are crucial for the continued success of sustainable beach tourism in Cape Coast. Policymakers could use these insights to allocate resources and implement coordinated waste management and environmental protection policies in addition to enforcement of the law. Moreover, the successful practices observed, such as using energy-efficient lighting systems, waste reduction, especially single-use plastics, and landscaping with native plants, can serve as a model for other beach destinations. Local tourism managers and developers can adopt these strategies to balance economic growth with environmental sustainability. Furthermore, this study highlights the importance of integrating local cultural experiences to enhance authenticity in tourism offerings. Local businesses, tourism operators, and developers can prioritize collaboration with local artisans, vendors, and communities to provide an authentic experience for tourists and boost the local economy. The study suggests the need for a structured framework to regularly assess the environmental and socio-economic impacts of beach development. Tourism authorities and developers can use this framework to set benchmarks for sustainable practices, allowing for continuous improvements based on feedback and observed outcomes. Finally, local governments, NGOs, and tourism organizations could implement training programmes and waste management initiatives that involve local communities, fostering a sense of ownership and long-term commitment to sustainability.

In terms of originality, this study integrates economic growth and environmental protection as one domain, unlike previous studies, which treat them separately. The study also promotes locally sourced goods and services (boosting livelihoods and creating jobs) and environmental stewardship practices (waste reduction, litter control, nature conservation). This is very distinctive from past studies. In addition, the study is tailored to the unique challenges of Cape Coast beaches under the Cape Coast Metropolitan Assembly (CCMA). This localized lens strengthens originality by moving beyond generic global sustainability prescriptions and providing practical and locally-based solutions.

Abbreviations

USAID	United States Agency for International Development
SDGs	Sustainable Development Goals
ESM	Environmental and Social Management
UNEP	United Nations Environment Programme
CCMA	Cape Coast Metropolitan Assembly
GTA	Ghana Tourism Authority
WTTC	World Travel and Tourism Council
UNICEF	United Nations Children's Fund
IWA	International Water Association
EAC	East African Community

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Data Availability Statement

Data included in the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

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