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Towards Sustainable Tourism Development in Sharm El-Lulli Area at Marsa Alam City

Asmaa Sayed Ahmed[a] **Aya Mohamed Magdy**[b], **Nesreen Khairy Ali**[c],

[a] *Master researcher , tourism studies Department, Faculty of tourism and hotels ,Minia University*
[b], *Associate Professor, Tourist Guidance Department, Faculty of tourism and hotels, Minia University*
[c] *Associate Professor, tourism studies Department, Faculty of tourism and hotels , Minia University*

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Abstract

This research investigates the potential for sustainable tourism development in the Sharm El-Lulli area, located in Marsa Alam city, one of Egypt's most pristine coastal environments. The study aims to evaluate the region's resources, assess current sustainable tourism practices, identify major challenges, and develop a strategic plan to enhance sustainable development in the area. To achieve these objectives, the study employed a descriptive-analytical approach and utilized both primary and secondary data. Primary data was collected through a questionnaire: targeting 108 officials from key organizations such as the Ministry of Environment, Red Sea Governorate, Hurghada Environmental Protection and Conservation Association (HEPCA), eco-tourism developers, and resorts. Data were analyzed using SPSS v25 with descriptive statistics, correlation tests, and ANOVA analysis. The findings highlight that while Sharm El-Lulli possesses high tourism potential through its natural beauty, coral reefs, Bedouin culture, and protected ecosystems, it lacks essential infrastructure, such as accommodation, sanitation, and sustainable transportation systems. Based on the results, the study recommends the implementation of sustainable tourism strategies that involve all stakeholders such as government, private sector, NGOs, and the local community in the decision-making process. It emphasizes environmental regulations enforcement, awareness campaigns, infrastructure development, and promotion of eco-tourism activities to position Sharm El-Lulli as a leading model for sustainable coastal tourism in Egypt.

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1. Introduction

Sustainable tourism development is one of the recent developments that have emerged because of the negative changes that the environment of tourist destinations has witnessed in recent period. This led to the interest of tourism countries in sustainable development plans, which resulted in the use of sustainable tourism development tools. Sustainable development seeks to improve the quality of human life, but not at the expense of the environment. Some concepts of development deplete natural resources because it leads to the failure of the development process itself(Kupika et al., 2024)

The concept of sustainable development was reinforced at the 1992 Earth Summit in Rio de Janeiro, Brazil. However, it was originally defined by the World Commission on Environment and Development (1987) in its report Our Common Future as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Sustainable tourism, according to the UNWTO (2023), builds upon this definition and includes making optimal use of environmental resources, respecting socio-cultural authenticity of host communities, and ensuring long-term economic benefits equitably distributed among all stakeholders (United Nations World Tourism Organization [UNWTO], 2023).

Research gap

Sharm El-Lulli is characterized by a noticeable scarcity of supporting tourism services, such as rest houses, public facilities, and accommodation in close proximity to the beach. The nearest lodging facilities are located approximately 11 km away, even though the beach is officially part of the Wadi El Gemal Reserve. Geographically, it lies about 18 km south of the core zone of Wadi El Gemal Nature Reserve. Despite its richness in unique natural resources, the site remains relatively under-recognized within the wider tourism market. Nonetheless, Sharm El-Lulli Beach has gained international recognition, being ranked among the world's top ten beaches by TripAdvisor, which attracts visitors from across the globe. These circumstances underscore the strategic importance of adopting sustainable tourism development approaches to maximize the area's potential while ensuring the conservation of its fragile environment.

Research questions

RQ1: What are the capabilities and resources of Sharm El-Lulli area in Marsa Alam?
RQ2: What is the current situation of sustainable tourism development in Sharm El-Lulli area?
RQ3: What are the challenges facing sustainable tourism development in Sharm El-Lulli area?
RQ4: How can a plan for sustainable tourism development be achieved in Sharm El-Lulli area?

Research Objectives

The Objectives of research are summarized as follows:
Knowing the capabilities and resources of Sharm El-Lulli area in Marsa Alam.
2- Identifying the current situation of sustainable tourism development in Sharm El-Lulli area.

3- Determining the most important challenges facing sustainable tourism development in Sharm El-Lulli area.
4- Presenting a plan for sustainable tourism development in Sharm El-Lulli area.

Research Significance

The importance of this study represented in introducing Sharm El-Lulli area in Marsa Alam and paying attention to tourism development in this area. Moreover, the study importance represented at identifying sustainable tourism development plans in Sharm El-Lulli area and how to benefit from these plans to conserve the resources of the area. Furthermore, the study care about knowing the most important obstacles and challenges that stand against investment in the field of tourism in Sharm El-Lulli.

2. Literature Review

2.1. Concept of tourism development

Tourism development is "one of the effective methods to achieve economic and social development in the state through the work of homogeneity, coordination and coordination between various productive sectors" (Zein El Den, 2016, p123).

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 (UNWTO, 2013).

The development and expansion of tourism services and their needs require tourism planning intervention as a scientific method aimed at achieving the highest possible rate of tourism growth at the lowest possible cost (UNWTO, 2015)

Tourism is widely recognized as a vital driver of development in destination areas, as it contributes not only to meeting the needs of tourists through the provision of essential services but also to strengthening national economic growth. Beyond its local impact, tourism has the potential to play a strategic role in reducing the economic disparity between developed and developing nations by fostering international cooperation and creating sustainable economic opportunities. Recent studies emphasize that tourism development, when planned effectively, can stimulate both economic and social progress, particularly in developing countries, while ensuring long-term sustainability (Spiess, Al-Mubarak, & Weber, 2025).

2.2. Sustainable tourism definitions

Sustainable tourism is tourism that minimizes the costs and maximizes the benefits of tourism for natural environments and local communities, and can be carried out indefinitely without harming the resources on which it depends (World Tour Environmentally responsible travel and visitation to natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features, both past and present) in a way that promotes conservation, has a low visitor impact, and provides for beneficially active socio-economic involvement of local peoples (UNWTO, 2013).

Sustainable tourism is defined as all forms of activities, management and development of tourism that preserve natural, economic and social integrity and guarantee maintenance of natural and cultural resources (Niedziółka, 2014).

2.3. Dimensions of sustainable tourism

A sustainable tourism is considered in three contexts economic, environmental and socio-cultural as follows (Panasiuk, Mc Cool, 2001):

- Economic aspects of sustainable tourism

a) Economic profitability

Ensuring the viability and competitiveness of regions and businesses to achieve long-term viability;

b) Local prosperity

Maximizing the economic benefits of tourism to the local community, including the expenditure of tourists in the area;

c) Quality of employment

Increasing the quantity and quality of jobs related to tourism in the local community, including wages, work environment and employment opportunities without discrimination;

d) Social equity

Ensuring fair and equal distribution of social and economic benefits coming from tourism.

- Environmental aspects of sustainable tourism

a) Physical integrity

Maintaining and building quality of the landscape, in both urban and rural areas and preventing ecological and visual pollution;

b) Biological diversity

Promoting and protecting environment, natural habitats and wildlife, as well as minimizing the impact of tourism on the environment;

c) Effective waste management

Minimizing of the use of rare and non-renewable resources in the development of tourism;

d) Clean environment

Minimizing of water, air, soil pollution and reduction of waste generated by tourists and tourist operators.

2.4. The Historical Development of Sustainable tourism development

At the beginning of last century, the idea of sustainable tourism became more popular among public sector, which is responsible for planning and strategy and private, i.e. travelling and touristic enterprises. The United Nations Environmental Programme (UNEP) introduced its Initiative for Sustainable Tourism, which was aimed at tour operators. This was followed by the UN declaration to designate the year 2002 as the International Year of Ecotourism. Later on a World Summit on Sustainable Development was held in Johannesburg (also called “Rio+10”). This initiative for the first time stressed the importance of sustainable development in tourism. Other organizations connected to the industry such as World Tourism Organization (UNWTO) or the World Travel and Tourism Council (WTTC) contributed to the principles of sustainable development, which aims to minimize damage the environment, wildlife and local populations caused by tourists and the industry (Niedziółka, 2012).

2.5. Sustainable tourism development definitions

Sustainable development is one that meets the needs of the present generation without comprising the ability for future generations to meet their own needs (Niedziółka, 2014).

Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. The concept of sustainable development can be interpreted in many ways, but at its core is an approach to development that looks to balance different, and often competing, needs against an awareness of the environmental, social and economic limitations we face as a society (Fischer et al., 2023).

2.6. Protected areas

A nature reserve or protected area is a geographical area of a specific area allocated to preserve renewable environmental resources and apply good systems for their exploitation, and is supervised by a specific body. These areas are characterized by the fact that they may contain plants or animals threatened with extinction, which require their protection from human encroachment and pollution in all its forms. (worboys etal.,2015)

This area may contain fossils from previous geological eras, such as Wadi al-Hitan in Fayoum and the Petrified Forest in Abbassia in Cairo. A nature reserve may also be known as a wildlife reserve, biosphere reserve (biological reserve), or nature conservation area.It is a protected area of importance for plants, animals, geological features, or other special interests that are reserved and managed for conservation purposes and to provide special opportunities for study or research. Nature reserves may be designated by government institutions in some countries, or by private landowners, such as charities and research institutions. Nature reserves are divided into different categories of the union according to the level of protection provided by local laws. It is usually more strictly protected than a nature park. Different jurisdictions may use other terms, such as ecological protection area or special protected areas, in legislation and in the official names of reserves (Treves et al., 2005).

2.7. Protected areas definitions

A Protected Area is a clearly defined geographical space, recognized, dedicated and managed through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values. The establishment of comprehensive, ecologically representative, effectively managed and financially secured protected area networks is a critical strategy not only for biodiversity conservation, but for securing ecosystem goods and services, enabling climate change adaptation and mitigation, and helping countries achieve the Millennium development goals. (IUCN, 2008).

The International Union for Conservation of Nature (IUCN, 2004), defines a protected area as: a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long_term conservation of nature**.**

2.8. Sustainable Tourism Development in Protected Areas

Sustainable Tourism Development in Protected Areas should follow these elements (Candrea and Ispas, 2009):

1- Make optimal use of environmental resources that constitute a key element in tourism development, maintaining essential ecological processes and helping to conserve natural heritage and biodiversity.

2- Respect the socio-cultural authenticity of host communities, conserve their built and living cultural heritage and traditional values, and contribute to inter-cultural understanding and tolerance.
3- Ensure viable, long-term economic operations, providing socio-economic benefits to all stakeholders that are distributed, including stable employment and income-earning opportunities and social services to host communities, and contributing to poverty alleviation.

2.9. Marsa Alam City

Marsa Alam city is located at (270) km south of Hurghada city and its height above sea level ranges around (60) meters. It has two villages: Berenice village, which is located south of Marsa Alam at 110km Abu Al Hassan Al Shazly village is located 150 km South East of Marsa Alam .(Red Sea Governorate, 2024).

It contains the shrine of Sheikh Abu al-Hasan al-Shadhili, which is considered a major religious shrine, especially for Sufi orders. Marsa Alam is considered one of the most beautiful tourist areas in the Red Sea, as it is famous for diving and is also a model for specialized tourism such as safari, as it includes a unique group of islands, including Zabargad Island and Khawar Island, as well as a unique group of mountains and valleys. Development in this city at full speed to establish an infrastructure that accommodates the urban and tourist planning of the most up-and-coming tourist resorts. The city has Marsa Alam International Airport, which is located 60 km north of the city. It is the first airport to be implemented by the private sector under the BOT system. On this basis, projects were implemented in various fields in 2010 (Attalla, 2019).

3. Protected Areas in Marsa Alam

There are many protected areas in Marsa Alam as follows (Ministry of Environment, 2024):

1- **Wadi El Gemal protected area**

Wadi El-Gemal Reserve has a long human history in addition to its beautiful biological diversity since it was inhabited by Bedouins thousands of years ago, passing through the Romans who lived in it and established mineral mines in it - and throughout the years and ages, the scarcity of rain in Wadi El-Gemal and the struggle of man between the elements of nature is what distinguishes this beautiful valley, which is clearly shown in the form of valleys and steep rock walls.

2- **Samadai preserve**

It is in Marsa Alam and is also called the Dolphins' House. The Samadai Reserve contains more than 5,000 dolphins. The reserve is also distinguished by its wonderful coral reefs in the middle of which dolphins sleep during the day. Therefore, the Samadai Reserve is one of the largest dolphin reserves in the world and the most beautiful tourist areas in the Red Sea.

3- **Elba Nature Reserves in the Red Sea Governorate**

The Elba Natural Area is announced in1986 and it is in the southeastern part of the Eastern Desert and its mountains are located on the common border between Egypt and Sudan on the Red Sea. The Elba area includes the following distinct environmental models:

- Mangrove forests in the coastal areas.
- Limited areas of coastal sand dunes with grassy vegetation.
- Coastal salt flats.

- The coastal desert plain.

3.1. Sharm El-Lulli area

Sharm El-Lulli is also known as Hankorab. It is a beach located 60 km south of Marsa Alam in the Red Sea Governorate, within the Wadi El Gemal protected area. Wadi El Gemal protected area is considered the most beautiful protected area in Egypt in terms of purity, biological diversity, creatures and coral reefs. In 2018, Trip Advisor ranked it among the 25 best beaches in the world and the first in the Middle East. It is characterized by turquoise water, white sand, purity and isolation. Moreover, the marine life in this area is amazing, as it contains different types of fish and coral reefs, so practicing diving are a wonderful experience. It is a popular destination for foreign tourists, especially French, German, English and Italian nationalities. Domestic tourism reaches the southern Red Sea regions, especially Marsa Alam, in much smaller numbers than the northern beaches such as Hurghada and Safaga, primarily due to the long distance, and because many people do not know the beauty and nature of the southern Red Sea, which is still virgin. (El-Gamily et al, 2001).

Sharm El-Lulli Beach is ranked among the top 10 beaches in the world, in 2018. It attracts visitors from all over the world. There are many hotels and resorts in Marsa Alam near Sharm El-Lulli Beach, providing a comfortable stay for those wishing to explore the amazing marine life and coral reefs. The distance between Cairo and Sharm El-Lulli Beach - Marsa Alam is about 650 kilometers, which makes it a short trip compared to the long distance that many people travel to enjoy the beauty of the region and the magic of the Red Sea. From Marsa Alam Airport to Sharm El-Lulli Beach there is a short distance of about 10 kilometers, which makes access to the beach easy and convenient for visitors arriving by plane.(Red sea Governorate, 2024).

3. Methodology

3.1 Introduction

The researcher took a descriptive-analytical method, in this approach, the researcher is trying to describe the subject of the study, analyze the data, and compare, explain, and assess, hoping to reach meaningful generalizations to increase and enrich knowledge on the subject.

Attempting to plan or design processes for sustainable tourist growth in the Sharm El Lulli area, as well as the involvement of stakeholders in accomplishing this goal. The aim of the study is to know the capabilities and resources of the Sharm El Lulli area in Marsa Alam and identify the current situation of sustainable tourism development in the Sharm El Lulli area. Determining the most important challenges facing sustainable tourism development in the Sharm El Lulli area. Presenting a plan for sustainable tourism development in the Sharm El Lulli area, since it is the most appropriate approach to describe the phenomenon in question.

Study Area and Context

Sharm El-Lulli Beach is ranked among the top 10 beaches in the world, in 2018. It attracts visitors from all over the world. There are many hotels and resorts in Marsa Alam near Sharm El-Lulli Beach, providing a comfortable stay for those wishing to explore the amazing marine life and coral reefs. The distance between Cairo and Sharm El-Lulli Beach - Marsa Alam is about 650 kilometers, which makes it a short trip compared to the long distance that many people travel to enjoy the beauty of the region and the magic of the Red Sea. From Marsa Alam Airport to Sharm El-Lulli

Beach there is a short distance of about 10 kilometers, which makes access to the beach easy and convenient for visitors arriving by plane (Red sea Governorate, 2024).

3.2. Designing The Instruments of the study

To achieve the objectives of the research, the study aimed at exploring the Sharm El-Lulli area in Marsa Alam and determining the capabilities and challenges for sustainable tourism development in Sharm El Lulli area employed a method of descriptive analytical methodology by using a questionnaire tool. A survey consisting of six sections was used as a data collection tool. The first section includes the staff s' demographic characteristics (gender, age, educational level, and years of experience). The second section included 32 variables representing Plans or procedures for sustainable tourism development in Sharm El Lulli area. The third section included 10 variables representing the role of stakeholders in achieving sustainable tourism development. The fourth section included 5 variables representing the advantages of tourism development in Sharm El Lulli area. The fifth section included 4 variables representing the disadvantages of tourism development in Sharm El Lulli area. The sixth section included 13 variables representing Challenges facing sustainable tourism development in the Sharm El Luli area of Marsa Alam.(Kupika et al., 2024:Fischer et al., 2023:Spiess, Al-Mubarak, & Weber, 2025)

The questionnaire items were anchored according to the Five Point Likert Scale "1 = strongly disagree", "2 = disagree", "3 = neutral", "4 = agree", and "5 = strongly agree".

3.3. Determining the Population/ Sample

The target population for this is across various staff of Ministry of Environment, HEPCA, Red Sea Diving Safari, Eco-Schools, and Developers, eco-resorts. The number of respondents who work for staff of Ministry of Environment, Red Sea Governorate, HEPCA, Red Sea Diving Safari, Eco-Schools, and Developers, eco-resorts. totaling 1850 employees. The researchers used Stephen K. Thompson's equation to calculate the sample

.

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

As a result, a sample of is 108 employees across various Ministry of Environment, Red Sea Governorate, HEPCA, Red Sea Diving Safari, Eco-Schools, and Developers, eco-resorts were selected randomly. All the responses were obtained valid.

Data collection

Data were collected by distributing a questionnaire to people ,They were distributed to: (108) staff of Ministry of Environment, Red Sea Governorate, HEPCA, Red Sea Diving Safari, Eco-Schools, and Developers, eco-resorts during three months from December 2024 to February 2025. The statistical analysis of the responses was carried out via SPSS v25. Data has been collected through questionnaires that were prepared in an approach that is relevant to the situation so as to decrease invalid responses.

3.4. Data Processing and Analyzing

The collected data was processed and analyzed. This included steps like editing, coding the replies, classification, tabulating the data, and performing several statistical computations such as frequencies, percentages, and various coefficients. The appropriate statistical operations, along with the use of appropriate tests of significance, are carried out to safeguard the drawing of conclusions concerning the study. After collecting the questionnaire lists, the researcher has analyzed all the data using the Statistical Package for Social Science (SPSS) analysis system, version (25), and used the frequencies, percent, means, standard deviation, rank, attitude, correlation analyses, and charts of respondents to the questionnaire.

3.5. Data Validity and Reliability

Data Validity

To validate the data collecting instrument used in this study in terms of readability, format, and ability to measure the study's components, the researcher distributed the questionnaire instrument to a sample of Ministry of Environment, Red Sea Governorate, Hurghada Environmental Protection and Conservation Associatio (HEPCA), Red Sea Diving Safari, Eco-Schools, and Developers, eco-resorts, the questionnaire was then modified and refined based on the domain experts' views and suggestions. Furthermore, the experts expressed interest and communicated with the researcher about the questionnaire instrument, which adds to its validity.

Data Reliability

Before proceeding with further analysis, reliability testing was carried out to verify uniform measurement across the various questions in the questionnaire. Indeed, measuring dependability reveals an instrument's stability and consistency. As a result, this method establishes reliability by assessing the internal consistency of the research instrument, such as the questions (items) in the questionnaire that are typically offered. Cronbach's Alpha is one of the most used measures for determining a scale's dependability, with an index ranging from 0 to 1. Researcher should aim for values closer to 1.0, as Alpha values demonstrate that the study's instrument is robust and repeatable. However, it is worth noting that in the social sciences, a threshold value of 0.7 is deemed acceptable.

Table (1) Cronbach's Alpha value

Variables	No. of items	Cronbach's Alpha Value	Validity Coefficient*
Plans or procedures for sustainable tourism development in Sharm El Lulli area	**32**	**0.992**	**0.996**
● Environmental Sustainability procedures	**13**	**0.990**	**0.995**
● Socio-Cultural Sustainability procedures	**8**	**0.973**	**0.986**
● Economic Sustainability procedures:	**6**	**0.972**	**0.986**
● Governance and Management procedures:	**5**	**0.965**	**0.982**
The role of stakeholders in achieving sustainable tourism development	**10**	**0.977**	**0.988**
● Tourism Businesses	**4**	**0.957**	**0.978**
● Local Communities:	**3**	**0.973**	**0.986**
● NGOs and Civil Society Organizations	**3**	**0.979**	**0.989**
The advantages of tourism development in Sharm El	**5**	**0.989**	**0.994**

Lulli area			
The dis-advantages of tourism development in Sharm El Lulli area	**4**	**0.918**	**0.958**
Challenges facing sustainable tourism development in the Sharm El Luli area of Marsa Alam	**13**	**0.951**	**0.975**
● Environmental Challenges	**4**	**0.918**	**0.958**
● Socio-Cultural Challenges	**3**	**0.953**	**0.976**
● Economic Challenges:	**3**	**0.899**	**0.948**
● Governance and Management Challenges	**3**	**0.776**	**0.881**
Total	**64**	**0.992**	**0.996**

* Validity coefficient = $\sqrt{}$ Reliability coefficient

To measure the internal consistency and reliability of the study's constructs. Cronbach's alpha (α) measure was used. The scales' reliabilities were measured and the Cronbach's Alpha of all scales in Table (1) ranged from 0.918 to 0.992, and for total questionnaire Items were(0.992), this indicate an acceptable Cronbach's Alpha value for each field, whenever Cronbach's Alpha value is acceptable if it's more than (0.7).

3.6. Results and Discussion

The following part explains the results concerning the five sections representing Plans or procedures for sustainable tourism development in Sharm El Lulli area, The role of stakeholders in achieving sustainable tourism development, The advantages of tourism development in Sharm El Lulli area, The dis-advantages of tourism development in Sharm El Lulli area, and Challenges facing sustainable tourism development in the Sharm El Luli area of Marsa Alam

Descriptive analysis

In this section, the researcher relied mainly on descriptive analysis to get the means and the standard deviations for the study constructs along with their items. The items were measured using a Likert-type scale as follows.

First Section: Respondent Demographic Characteristics

Table 2: Demographic profile of sample elements

Variable		**Frequency**	**Percentage (%)**
Gender			
	Male	**99**	**91.7**
	Female	**9**	**8.3**
age group			
	Less than 30	**0**	**0**
	31 – 40 years old	**9**	**8.3**
	41 – 50 years old	**72**	**66.7**
	51 – 60 years old	**18**	**16.7**
	Over than 60	**9**	**8.3**

Educational level			
	Bachelor's degree	**27**	**25.0**
	Master's Degree	**0**	**0**
	Ph.D. Degree	**81**	**75.0**
Years of experiences			
	1-2 years	**0**	**0**
	2-5 years	**0**	**0**
	5-7 years	**0**	**0**
	7-10 years	**9**	**8.3**
	more than 10 years	**99**	**91.7**

As shown in Table (2), the presentation of the research findings begins with a brief demographic description of respondents by gender, with males (91.70%) outnumbering females (8.30%) in this sample. In the analysis, the age category Between 41 - 50 years old had the most respondents (66.70%), followed by 51 – 60 years old (16.70 %). In terms of education level, the most typical degree is a Ph.D. Degree, which is held by (75.0%) of respondents, while (25%) of respondents have a Bachelor's degree. Concerning years of experience, the results show that 91.70% of the respondents have more than 7 years of experience.

Section 2: procedures for sustainable tourism development in Sharm El Lulli area

Table 3: Environmental Sustainability procedures

Variables	SD	D	N	A	SA	Mean	Std deviation	Rank	Attitude
Designate and effectively manage MPAs to protect critical coral reef habitats.	**8.3**	**5**	**25**	**41.7**	**25**	**3.75**	**1.095**	**1**	**Agree**
Implement and strictly enforce guidelines for responsible diving and snorkeling practices, including buoyancy control, avoiding contact with corals, and minimizing the use of harmful sunscreens.	**16.7**	**8.3**	**16.7**	**33.3**	**25**	**3.42**	**1.428**	**6**	**Agree**
Establish long-term coral reef monitoring programs to track	**16.7**	**0**	**25**	**33.3**	**25**	**3.50**	**1.329**	**2**	**Agree**

the health of reefs and implement coral reef restoration initiatives where necessary.									
Upgrade and expand wastewater treatment facilities to minimize pollution entering the marine environment.	**16.7**	**16.7**	**8.3**	**41.7**	**16.7**	**3.25**	**1.368**	**12**	**Neutral**
Encourage the use of mooring buoys to reduce anchor damage to coral reefs.	**16.7**	**8.3**	**16.7**	**41.7**	**16.7**	**3.33**	**1.318**	**9**	**Neutral**
Encourage hotels and resorts to adopt water-saving measures, such as low-flow fixtures, rainwater harvesting, and efficient irrigation systems	**16.7**	**16.7**	**0**	**58.3**	**8.3**	**3.25**	**1.305**	**11**	**Neutral**
Explore the use of more sustainable desalination technologies with minimal environmental impact.	**16.7**	**0**	**25**	**50**	**8.3**	**3.33**	**1.184**	**7**	**Neutral**
Introduce effective waste segregation, recycling, and composting programs.	**16.7**	**0**	**33.3**	**41.7**	**8.3**	**3.25**	**1.169**	**10**	**Neutral**
Encourage the use of reusable bags, bottles, and containers throughout the tourism sector.	**16.7**	**8.3**	**16.7**	**33.3**	**25**	**3.42**	**1.388**	**5**	**Agree**
Encourage tourists and businesses to reduce waste generation through responsible consumption and waste reduction strategies.	**16.7**	**16.7**	**0**	**50**	**16.7**	**3.33**	**1.381**	**8**	**Neutral**
Encourage the use of solar and wind power in hotels and resorts.	**16.7**	**8.3**	**8.3**	**50**	**16.7**	**3.42**	**1.326**	**4**	**Agree**
Implement energy-efficient building practices and technologies in new developments.	**25**	**0**	**25**	**41.7**	**8.3**	**3.08**	**1.326**	**13**	

Promote the use of public transportation, cycling, and walking within Sharm El Luli.	**8.3**	**8.3**	**33.3**	**33.3**	**16.7**	**3.42**	**1.120**	**3**	**Agree**
Total Mean						**3.37**			**Neutral**

Table (3) presents the means and standard deviations of Environmental Sustainability procedures, which ranged between (3.75–3.08) compared with the total instrument mean (3.37). The statement "Designate and effectively manage MPAs to protect critical coral reef habitats." came out on the first rank (mean ± SD =3.75 ± 1.095). The item "Implement energy-efficient building practices and technologies in new developments." came out in the last rank (mean ± SD =3.08 ± 1.326).

Section 3: The role of stakeholders in achieving sustainable tourism development

Table 4: Tourism Businesses

Variables	SD	D	N	A	SA	Mean	Std deviation	Rank	Attitude
Implement environmentally friendly practices, such as energy and water conservation, waste reduction, and responsible sourcing.	**8.3**	**8.3**	**33.3**	**41.7**	**8.3**	**3.33**	**1.032**	**1**	**Neutral**
Provide high-quality tourism experiences that meet the needs and expectations of visitors while minimizing negative impacts.	**8.3**	**16.7**	**33.3**	**33.3**	**8.3**	**3.17**	**1.072**	**3**	**Neutral**
Ensure fair wages, decent working conditions, and employee safety for all tourism employees.	**16.7**	**8.3**	**41.7**	**25**	**8.3**	**3.00**	**1.160**	**4**	**Neutral**
Support local communities through employment opportunities, procurement of local goods and services, and community development initiatives.	**8.3**	**8.3**	**50**	**16.7**	**16.7**	**3.25**	**1.095**	**2**	**Neutral**
Total Mean						**3.19**			**Neutral**

Table (4) presents the means and standard deviations for Tourism Businesses, ranging from 3.00 to 3.33. Compared to the overall mean of 3.19, the statement "Implement environmentally friendly practices, such as energy and water conservation, waste

reduction, and responsible sourcing." achieved the highest ranking (mean = 3.33, SD = 1.032). Meanwhile, the statement "Ensure fair wages, decent working conditions, and employee safety for all tourism employees." ranked last (mean = 3.00, SD = 1.160), indicating the role of stakeholders in achieving sustainable tourism development.

Table 5: Local Communities

Variables	SD	D	N	A	SA	Mean	Std deviation	Rank	Attitude
Actively participate in the planning and development of tourism projects.	**25**	**8.3**	**8.3**	**50**	**8.3**	**3.08**	**1.388**	**3**	**Neutral**
Protect and promote local culture and traditions.	**16.7**	**8.3**	**25**	**33.3**	**16.7**	**3.25**	**1.305**	**2**	**Neutral**
Ensure that the benefits of tourism are fairly distributed among local communities.	**16.7**	**8.3**	**16.7**	**50**	**8.3**	**3.25**	**1.239**	**1**	**Neutral**
Total Mean						**3.19**			**Neutral**

Table (5) presents the means and standard deviations for Local Communities, ranging from 3.08 to 3.25. Compared to the overall mean of 3.19, the statement "Ensure that the benefits of tourism are fairly distributed among local communities." achieved the highest ranking (mean = 3.25, SD = 1.239). Meanwhile, the statement "Actively participate in the planning and development of tourism projects." ranked last (mean = 3.08, SD = 1.338), indicating the role of stakeholders in achieving sustainable tourism development.

Section 4: the advantages of tourism development in Sharm El Lulli area

Table 6: the advantages of tourism development in Sharm El Lulli area

Variables	SD	D	N	A	SA	Mean	Std deviation	Rank	Attitude
Environmental Protection	**8.3**	**16.7**	**8.3**	**33.3**	**33.3**	**3.67**	**1.318**	**6**	**Agree**
Promoting Eco-Tourism	**8.3**	**8.3**	**16.7**	**33.3**	**33.3**	**3.75**	**1.239**	**2**	**Agree**
supporting the Local Economy	**8.3**	**0**	**25**	**25**	**41.7**	**3.92**	**1.193**	**1**	**Agree**
Using Renewable Energy	**16.7**	**8.3**	**16.7**	**25**	**33.3**	**3.50**	**1.450**	**5**	**Agree**
Efficient Resource Management	**11.7**	**8.3**	**16.7**	**30**	**33.3**	**3.50**	**1.250**	**4**	**Agree**
Total Mean						**3.67**			**Agree**

Table No. 6 summarizes the attitudes, means, and standard deviation in advantages of tourism development in Sharm El Lulli area. The overall mean value of

3.67 showed advantages. In addition, the greatest mean was for " supporting the Local Economy.," with a value of 3.92 and a standard deviation of 1.193, while the lowest mean value was for " Environmental Protection.," with a low mean value of 3.67 and a standard deviation of 1.318.

Section 5: The dis-advantages of tourism development in Sharm El Lulli area

Table 7: the dis-advantages of tourism development in Sharm El Lulli area

Variables	SD	D	N	A	SA	Mean	Std deviation	Rank	Attitude
Lack of Environmental Awareness	**16.7**	**16.7**	**8.3**	**58.3**	**0**	**3.08**	**1.193**	**2**	**Neutral**
Insufficient Infrastructure	**8.3**	**25**	**33.3**	**33.3**	**0**	**2.92**	**.958**	**4**	**Neutral**
Limited Funding	**8.3**	**16.7**	**25**	**50**	**0**	**3.17**	**.991**	**1**	**Neutral**
Absence of Long-Term Planning	**8.3**	**16.7**	**41.7**	**33.3**	**0**	**3.00**	**.917**	**3**	**Neutral**
Total Mean						**3.04**			**Neutral**

Table No. 7 summarizes the attitudes, means, and standard deviation in the dis-advantages of tourism development in Sharm El Lulli area. The overall mean value of 3.67 showed dis-advantages. In addition, the greatest mean was for " Limited Funding.," with a value of 3.17 and a standard deviation of 0.991, while the lowest mean value was for " Insufficient Infrastructure.," with a low mean value of 2.92 and a standard deviation of 0.958.

Section 6: challenges facing sustainable tourism development in the Sharm El Luli area of Marsa Alam

Table 8: Environmental Challenges

Variables	SD	D	N	A	SA	Mean	Std deviation	Rank	Attitude
Overfishing, pollution from coastal development and tourism activities (sewage, anchor damage), and climate change (coral bleaching) pose significant threats to the region's vibrant coral reefs.	**16.7**	**16.6**	**16.7**	**41.7**	**8.3**	**3.08**	**1.261**	**4**	**Neutral**
Marsa Alam is located in a desert environment with limited freshwater resources. Sustainable water management practices are crucial for tourism development	**8.3**	**8.3**	**41.7**	**33.3**	**8.3**	**3.25**	**1.015**	**3**	**Neutral**

and the local community.									
Inadequate waste management systems can lead to pollution of the marine environment and surrounding areas.	**8.3**	**0**	**41.7**	**41.7**	**8.3**	**3.42**	**.958**	**1**	**Agree**
Rising sea levels, increased temperatures, and more frequent extreme weather events pose significant threats to coastal ecosystems and tourism infrastructure.	**8.3**	**0**	**58.3**	**25**	**8.3**	**3.25**	**.929**	**2**	**Neutral**
Total Mean						**3.25**			**Neutral**

According to this table(8), respondents' The challenges facing sustainable tourism development in the Sharm El Luli area of Marsa Alam and the most Environmental Challenges are: "Inadequate waste management systems can lead to pollution of the marine environment and surrounding areas.", "Rising sea levels, increased temperatures, and more frequent extreme weather events pose significant threats to coastal ecosystems and tourism infrastructure." and "Marsa Alam is located in a desert environment with limited freshwater resources. Sustainable water management practices are crucial for tourism development and the local community." with mean 3.42, 3.25 and 3.25 respectively.

Table 9: Socio-Cultural Challenges

Variables	SD	D	N	A	SA	Mean	Std deviation	Rank	Attitude
Insufficient involvement of local communities in tourism planning and decision-making processes can lead to social and economic disparities.	**0**	**16.7**	**25**	**50**	**8.3**	**3.50**	**.870**	**1**	**Agree**
Ensuring that tourism development respects and preserves the local Bedouin culture and traditions is crucial.	**8.3**	**8.3**	**33.3**	**33.3**	**16.7**	**3.42**	**1.120**	**2**	**Agree**
Creating meaningful employment opportunities for local residents in the tourism sector while ensuring fair wages and working conditions.	**8.3**	**8.3**	**33.3**	**41.7**	**8.3**	**3.33**	**1.032**	**3**	**Neutral**

Total Mean		**3.42**		**Agree**

According to this table (9), respondents' The challenges facing sustainable tourism development in the Sharm El Luli area of Marsa Alam and the most Socio-Cultural Challenges are: "Insufficient involvement of local communities in tourism planning and decision-making processes can lead to social and economic disparities.", "Ensuring that tourism development respects and preserves the local Bedouin culture and traditions is crucial." and "Creating meaningful employment opportunities for local residents in the tourism sector while ensuring fair wages and working conditions." with mean 3.50, 3.42 and 3.33 respectively.

Table 10: Economic Challenges

Variables	SD	D	N	A	SA	Mean	Std deviation	Rank	Attitude
Dependence on mass tourism can lead to seasonal issues and vulnerability to economic downturns.	**8.3**	**0**	**50**	**41.7**	**0**	**3.25**	**.833**	**1**	**Neutral**
A significant portion of tourism revenue may leak out of the local economy, benefiting international companies rather than local communities.	**8.3**	**8.3**	**50**	**33.3**	**0**	**3.08**	**.866**	**3**	**Neutral**
Sharm El Luli needs to differentiate itself from other Red Sea destinations to attract visitors and maintain its competitive edge.	**16.7**	**8.3**	**25**	**41.7**	**8.3**	**3.17**	**1.219**	**2**	**Neutral**
Total Mean						**3.17**			**Neutral**

According to this table(10), respondents' The challenges facing sustainable tourism development in the Sharm El Luli area of Marsa Alam and the most Economic Challenges are: "Dependence on mass tourism can lead to seasonality issues and vulnerability to economic downturns.", "Sharm El Luli needs to differentiate itself from other Red Sea destinations to attract visitors and maintain its competitive edge." and "A significant portion of tourism revenue may leak out of the local economy, benefiting international companies rather than local communities." with mean 3.25, 3.17 and 3.08 respectively.

Table 11: Governance and Management Challenges

Variables	SD	D	N	A	SA	Mean	Std deviation	Rank	Attitude

Inadequate enforcement of environmental regulations and sustainable tourism guidelines can undermine efforts to achieve sustainability.	**0**	**25**	**50**	**25**	**0**	**3.00**	**.710**	**1**	**Neutral**
Poor coordination among government agencies, tourism operators, and local communities can hinder effective tourism planning and management.	**8.3**	**8.3**	**58.3**	**25**	**0**	**3.00**	**.820**	**2**	**Neutral**
The absence of a comprehensive and long-term sustainable tourism development plan for the region.	**25**	**8.3**	**25**	**41.7**	**0**	**2.83**	**1.219**	**3**	**Neutral**
Total Mean						**2.94**			**Neutral**

According to this table(11), respondents' The challenges facing sustainable tourism development in the Sharm El Luli area of Marsa Alam and the most Governance and Management Challenges are: "Inadequate enforcement of environmental regulations and sustainable tourism guidelines can undermine efforts to achieve sustainability.", "Poor coordination among government agencies, tourism operators, and local communities can hinder effective tourism planning and management." and "The absence of a comprehensive and long-term sustainable tourism development plan for the region." with mean 3.00, 3.00 and 2.83 respectively.

4.2. Pearson Correlation analysis

Table 12: Correlation between the role of stakeholders in achieving sustainable tourism development and Plans or procedures for sustainable tourism development in Sharm El Lulli area

		Plans or procedures for sustainable tourism development in Sharm El Lulli area
The role of stakeholders in achieving sustainable tourism development	Pearson Correlation	**.949****
	Sig. (2-tailed).	**.000**

As seen in the table (12), there is a positive and significant relationship between the role of stakeholders in achieving sustainable tourism development and Plans or procedures for sustainable tourism development in

Sharm El Lulli area. The value of the Pearson correlation coefficient was (.949** - sig = 0.000). These results showed that there is a strong positive relation between the role of stakeholders in achieving sustainable tourism development and Plans or procedures for sustainable tourism development in Sharm El Lulli area. This positive correlation indicates that as the role of stakeholders in achieving sustainable tourism development increases, ratings for Plans or procedures for sustainable tourism development in Sharm El Lulli area increase.

Table 13: Correlation between Plans for sustainable tourism development in Sharm El Lulli area and the advantages of tourism development in Sharm El Lulli area

		The advantages of tourism development in Sharm El Lulli area
Plans for sustainable tourism development in Sharm El Lulli area	Pearson Correlation	**.807****
	Sig. (2-tailed).	**.000**

As seen in the table (13), there is a positive and significant relationship between Plans or procedures for sustainable tourism development in Sharm El Lulli area and The advantages of tourism development in Sharm El Lulli area. The value of the Pearson correlation coefficient was (.807** - sig = 0.000). These results showed that there is a strong positive relation between Plans or procedures for sustainable tourism development in Sharm El Lulli area and the advantages of tourism development in Sharm El Lulli area. This positive correlation indicates that as Plans for sustainable tourism development in Sharm El Lulli area increases, ratings for the advantages of tourism development in Sharm El Lulli area increase.

Table 14: Correlation between The role of stakeholders in achieving sustainable tourism development and the advantages of tourism development in Sharm El Lulli area

		The advantages of tourism development in Sharm El Lulli area
The role of stakeholders in achieving sustainable tourism development	Pearson Correlation	**.918****
	Sig. (2-tailed).	**.000**

As seen in the table (14), there is a positive and significant relationship between the role of stakeholders in achieving sustainable tourism development and the advantages of tourism development in Sharm El Lulli

area. The value of the Pearson correlation coefficient was (.918** - sig = 0.000). These results showed that there is a strong positive relation between the role of stakeholders in achieving sustainable tourism development and the advantages of tourism development in Sharm El Lulli area. This positive correlation indicates that as the role of stakeholders in achieving sustainable tourism development increases, ratings for the advantages of tourism development in Sharm El Lulli area increase.

4. The conclusion

The study found that the Sharm El-Lulli area in Wadi El Gemal National Park, Marsa Alam, possesses unique natural and touristic features such as clean beaches, rich biodiversity, and coral reefs, making it an ideal location for implementing sustainable tourism concepts. Survey results showed high visitor satisfaction and a strong willingness to pay more for eco-friendly services, indicating increasing environmental awareness and interest in responsible tourism.

However, several challenges were identified that hinder sustainable development, including poor infrastructure, limited environmental awareness, and the weak involvement of the local community, especially the Bedouins, in planning and management. Statistical analysis revealed a strong correlation between stakeholder engagement (government, local community, NGOs) and the quality of tourism planning. Community participation and improved services were shown to play a crucial role in enhancing tourist satisfaction.

The study also highlighted urgent environmental concerns such as coral reef degradation and pollution, along with socio-economic challenges like seasonal economic leakage and limited local benefits. It emphasized the need to diversify tourism activities, including diving, camping, and cultural tourism, while preserving local identity. In conclusion, sustainable tourism development in Sharm El-Lulli is achievable through integrated planning, collaboration among stakeholders, and the application of responsible environmental practices.

5. Recommendations

The study recommended the urgent development of tourism and environmental infrastructure in Sharm El-Lulli, including road improvement, eco-friendly facilities, and strict waste management systems. It emphasized the need to restrict construction activities to preserve ecosystems and called for strong collaboration between the Ministries of Tourism and Environment, tourism companies, and the local community to support sustainable growth. Capacity-building programs for residents and community-based tourism initiatives were also suggested to empower the Ababda people and ensure economic inclusion.

1. **Recommendations for the Ministry of Tourism and antiquities:**

- Many recommendations were made by the Ministry of Tourism and antiquities as follows:
- International Campaigns: Market Sharm El-Lulli as an eco-tourism paradise through digital platforms, social media, and travel influencers.
- Collaborate with Airlines & Tour Operators: Encourage direct flights and travel packages to Marsa Alam.

1.1. Recommendations for the Ministry of Environmental Affairs

- Designating protected areas where construction and human activity are restricted.
- Implementing a carrying capacity limit to control the number of daily visitors.
- Establishing no-anchor zones to prevent boat damage to coral reefs.
- Regulating fishing activities and enforcing a "catch and release" policy for specific species.

1.2. Recommendations for travel agencies to Develop and Promote Sharm El-Lulli:

1. Promotion and Marketing:

- Launching digital advertising campaigns targeting tourists interested in natural adventures and pristine beaches.
- Collaborating with traveling bloggers and influencers to cover and promote the area.

1.3. Recommendations for the Local Community:

- Promote cultural heritage by participating in and organizing authentic Bedouin experiences (e.g., crafts, storytelling, local cuisine) to enrich the tourist experience and preserve local identity.
- Engage in decision-making processes related to tourism development to ensure community needs and values are reflected in sustainability plans.
- Build capacity by attending training programs in hospitality, eco-tourism, guiding, and environmental stewardship to enhance employability and local service quality. Finally, the study encouraged community participation in tourism planning, the preservation of local heritage, and the diversification of tourist activities that combine leisure with environmental education. Effective management of the protected area, in collaboration with researchers and NGOs, was highlighted as a key factor in sustaining the natural resources and ensuring a high-quality experience for visitors.

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نحو تنمية سياحية مستدامة في منطقة شرم اللولي بمدينة مرسى علم

أسماء سيد أحمد [١] آية محمد مجدي [٢] نسرين خيري علي [٣]

[١] باحثة ماجستير، قسم الدراسات السياحية، كلية السياحة والفنادق، جامعة المنيا

[٢] أستاذ مساعد، قسم الدراسات السياحية، كلية السياحة والفنادق، جامعة المنيا

[٣] أستاذ مساعد، قسم الدراسات السياحية، كلية السياحة والفنادق، جامعة المنيا

الكلمات الدالة

السياحة المستدامة
مدينة مرسى علم
شرم اللولي
المحميات الطبيعية

المستخلص

يبحث هذا البحث في إمكانيات التنمية السياحية المستدامة في منطقة شرم اللولي، الواقعة بمدينة مرسى علم، إحدى أكثر البيئات الساحلية نقاءً في مصر. تهدف الدراسة إلى تقييم موارد المنطقة، وتقييم ممارسات السياحة المستدامة الحالية، وتحديد التحديات الرئيسية، ووضع خطة استراتيجية لتعزيز التنمية المستدامة في المنطقة.

لتحقيق هذه الأهداف، اعتمدت الدراسة منهجًا وصفيًا تحليليًا، واستخدمت بيانات أولية وثانوية. جُمعت البيانات الأولية من خلال استبيان شمل ١٠٨ مسؤولين من جهات رئيسية، مثل وزارة البيئة، ومحافظة البحر الأحمر، وجمعية حماية البيئة في مصر، ومطوري السياحة البيئية، والمنتجعات السياحية. حُلّلت البيانات باستخدام برنامج SPSS الإصدار ٢٥، مع استخدام الإحصاء الوصفي، واختبارات الارتباط، وتحليل التباين.

تُبرز النتائج أنه على الرغم من امتلاك شرم اللولي لإمكانات سياحية عالية بفضل جمالها الطبيعي، وشعابها المرجانية، وثقافتها البدوية، ونظمها البيئية المحمية، إلا أنها تفتقر إلى البنية التحتية الأساسية، مثل أماكن الإقامة، والصرف الصحي، وأنظمة النقل المستدامة. بناءً على هذه النتائج، توصي الدراسة بتنفيذ استراتيجيات سياحة مستدامة تُشرك جميع الجهات المعنية، من الحكومة والقطاع الخاص والمنظمات غير الحكومية والمجتمع المحلي، في عملية صنع القرار. وتُركز الدراسة على إنفاذ اللوائح البيئية، وحملات التوعية، وتطوير البنية التحتية، والترويج لأنشطة السياحة البيئية، لجعل شرم اللولي نموذجًا رائدًا للسياحة الساحلية المستدامة في مصر.

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