# Natural Attraction Elements for Ecotourism in Suakin (Red Sea State-Sudan)

**Dr.Sayda B. O. Ahmed**

Department of Environment and Ecology
Faculty of Geographical and Environmental Sciences- Khartoum University.

**Dr .Asma A. M. Makeen**

Department of Plant Protection and Environmental Studies
Faculty of Agriculture, Alzaiem Alazhari University.

**Dr. Somaya K. A. Mohamed**

Department of Biological Oceanography
Faculty of Marine Sciences and Fisheries, Red Sea University.

**ABSTRACT:**

Ecotourism has been growing rapidlyduring the last decades and becoming one of the most attractive tourism types in the world. The Red sea State is very famous with Ecotourism which can represent a basic factor for sustainable tourism development. This study was conductedin Suakin to assess the natural attraction elements of the city. The study focusses on the unique natural attractions of Suakin city and port area. Theseare represented by-geological and geomorphologic features, special marine habitats, coral reefs, sea grass beds, mangroves, and sandy beaches.The transparent seawater is inhabited by diversity of fish, sea birds and invertebrates with different unique species of marine and coastal plants. In addition to the offshore with its shallow and deep marine coral that contain unique diversity and endemism. Suakin is also characterized by its favorable climate in winter. So many ecotourism activities can be undertaken in Suakin city like

scuba diving, swimming, fishing, and birdswatching. The results of this study can contribute to consider and develop Suakin as an attractive world-privileged destination for ecotourism.
Keywords:Ecotourism, Suakin,natural elements,sustainable tourism, The Red Sea.

## مستخلص:

شهدت السياحة البيئية نمواً كبيرا في السنوات الأخيرة وأصبحت من أكثر أنواع السياحة جاذبية في العالم. تشتهر ولاية البحر الأحمر بالسياحة البيئية والتي تمثل عامل أساسي لتحقيق التنمية السياحية المستدامة. اجريت هذه الدراسة بمدينة سواكن وذلكلألقاء الضوءعلى عناصر الجذب الطبيعية بالمدينة. ركزت الدراسة على الطبيعة الفريدة لمدينة سواكن والمتمثلة فيالظواهر الجيولوجية والجيومرفولوجية، المواطن البحرية، الشعب المرجانية، موائل الحشائش البحرية، المانجروف، الشواطئ الرملية والمياه البحرية الصافية. تضم هذه المواطن تنوع عالي من الأسماك، الطيور البحرية واللافقاريات بالإضافة الى أنواع فريدة من النباتات البحرية والساحليةوالمياه الداخلية الضحلة والعميقة التي تضم أنواع مختلفة من المراجينالمتوطنة. كما تتميز مدينة سواكن بمناخ ملائم شتاءاً. وعليه الكثير من أنشطة السياحة البيئية من غطس وسباحة وصيد ومشاهدة الطيور يمكن ممارستها في مدينة سواكن. نتائج هذه الدراسة تساهم في تعريف العالم بمدينة سواكن كوجهة جاذبة للسياحة البيئية في العالم.

## 1. Introduction:

Ecotourism has been growing rapidlyduring the last decades and becoming one of the most attractive tourism industries. Ecotourism is a new concept that supports the environmental conservation andprovides employment opportunities to local communities. It has the potential to conserve and protect the natural areas and known as a vehicle for sustainable development. (Kuldeep and Kuldeep, 2019). It was based on the natural element of holiday activities together with the increased awareness to minimize the impacts of tourism on the environment and natural resources.It is nature-based tourism, dependent upon the quality of the environment (Forestry Tasmania, 1994). The Republic of the Sudan's Red Sea coast extendsover 750 kmsalong the westernshores ofTheRed Sea (Olsen et al., 2021). The Red Sea State is known with Ecotourism activities which can represent a potential resource for sustainable development. The Red Sea has been recognized as a region of high biodiversity (Stehli and Wells, 1971) and endemism. It has several unique marine habitats, including coral reefs, mangroves, and sea grass beds. They provide key resources for coastal populations providing food, shoreline protection and stabilization as well as economic benefits from tourism (Barrania Ahmed, 2010).Red Sea tourism is largely dependent on the surrounding environment such as sand and water quality and especially coral reefs (Hilmi, et al. 2012). Tourismindustry is essential for the world's economy to achieve sustainable development. The main issue is sustainability; ecotourism depends on the natural component which is considered in establishment and management of the sustainable tourism. So, the natural elements such as sea grass beds, mangroves, the sandy beaches, and seawater transparency that inhabited by diversity of fish, sea birds and invertebrates with different unique species of marine and coastal plants.In addition to the offshore with its shallow deep marine corals and the coral reefs.The surrounding environment and the prevailing climate in Suakin can be managed effectively to assess ecotourism potentialin Suakin area.

## 2.Objectives:

This paper attempts to assess the different types of natural elements and

the tremendous potential for ecotourism in Suakin Island, city and port which assumed professional approach towards the future development of the ecotourism in Suakin area.

## 3.The Study Area:

3.1. The Red Sea: The Red Sea is one of the most biologically diverse tropical seas in the world.In the Sudan the Red Sea coast has a total length of approximately 750 km including inlets and bays (Diraret al., 2012) (Figure1). Its maximum width is 306 km. The Red Sea has three distinct zones of depth: the shallow reef- studded shelves of less than 50 m, the deep shelves of 500-1000 m and the central trench of more than 1000 m. The maximum depth of the Red Sea is 3040 m off Port Sudan. The Red Sea is unique by its uniform temperature distribution at the surface and at the different depths and its high degree of transparency reaches up to 46 m. These characteristics have made the Red Sea an ideal place for snorkels, divers, and photographers.It is comfortably warm, one could float nicely, and the visibility is better than in most other places (PERSGA, 2006).There are 7 ecosystems recorded from the Red Sea and Sudanese coast which include "Sabkhas", Marshes and Wetlands, Sandy Shores, Rocky Shores, Mangroves, Coral Reefs, and sea grasses; more than 200 species of corals recorded, and about 500 species of benthic algae have been recorded and over 1,000 species of fish (Sheppard et al.,1992).

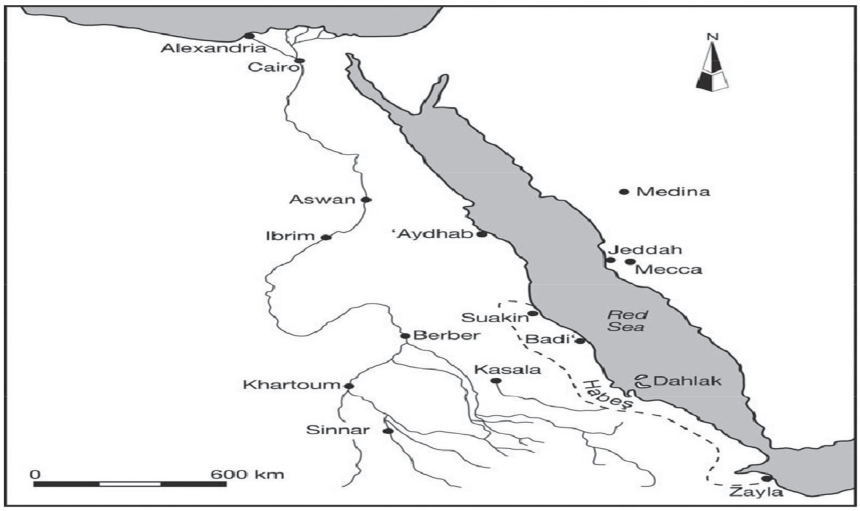


Figure.1: The Total coastal line of Sudan (is about 750 Kms).

The climate of Red Sea is arid with an average annual rainfall of 111 mm, mostly falling in the wet season of November to February. Sea surface temperatures measured in Port Sudan area range from 26.2°C to 30.5°C, with salinities from 38 to 41%. Winds are from a northerly direction, and near-shore surface currents follow the prevailing wind direction. (Reported by Institute of Marine Research, Red Sea University as cited by (Diraret al., 2012). The Red Sea coast of the Sudan is distinguished from the interior of that country by its higher air humidity, winter rains, and by the fact that the rainy season can extend for a longer time than the summer rainy period inland. The temperature shows wide variations throughout the year, and during the daytime with average temperature degrees during summer of about 38°C and about 20°C during winter. The humidity in the coastal area ranges between 50% and 80%. ( Carvalho, et al.,2019)

3.2. Suakin City: Suakin was one of the most important port cities in the upper Red Sea region, located on Sudan's narrow coastal plain wedged between the Red Sea Hills and the Red Sea.It has beenabandoned as the main port in late 1920s. The historic core of the urban centre has deteriorated to such an extent that it now consists of little more than a pile of rubble (Colin et al., 2016). It is situated about 58 km (36 miles) south of Port Sudan; it has population of 43.337 according to 2009 estimate. Most of the population living along the coastal area are fishermen,pastoral nomads raising livestock and merchants.

Suakin remains one of the most enigmatic and iconic sites in eastern Sudan, with many traditions and folk tales embedding the place into the region's psyche (Calia, 1997&99 and Salim, 1997).Throughout the second millennium it was one of the region's primary ports, facilitating trade and the movement of people from Africa to the Gulf, East Asia, and Europe(Breen, et al.,2016).In addition,being an important postingpoint in the journey of Muslim pilgrims traveling from African nations to Mecca and Medina to perform Hajj.

3.3. Suakin Island: The Island is characterized by its historical and archaeological importance. Suakin central core was contained on a coral island approached by boat along a narrow channel (2.5 km in length and c. 150 m at its widest point) leading from the open Red Sea in a south-westerly direction (Figure 2).

The Island is located within a long and narrow saline lagoon which is

sheltered by a coral reef field at its seaward entrance. It measures750 m at its widest point. The Island was the administrative centre of the port, as well as where its merchants and leading citizens lived and worked (Breen, et al.,2016).

Figure2: Suakin Island.

## 4. Geology and Geomorphology:

4.1 Red Sea Hills: The Red Sea Hills are a range of north-south trending mountains that rise steeply from the coastal plain and extend to both Egypt and Eritrea. Most of these hills rise to 1000 m above the sea level, some even higher to over 2000 m. The Red Sea Hills are characterized by their stunning scenery and different attractive colors which attract nature loving tourists. Mountains ecotourism will initiate tourists to conserve the precipitous ecosystem and respect the local people culture and their traditions. Many activities and adventures can be practiced on the mountains like camping, mountain climbing, hiking, wildlifesurveillance, birds watching and hunting (under government regulation).

## 4.2Coastal Plain:

The Red Sea coastal plain is formed of sandy hillocks and flats of calcareous silts that slope gently toward the east. Its width ranges from 8 to 20 km.

It includes the salt marshes, inland bays, lagoons and wadi banks and deltas, which maintainsa diverse indigenous flora and fauna.The coastal plain is bounded by a chain of mountains, the Red Sea Hills, which sprint parallel to the coast and rise to 2,217 m at Jebel Asoteriba in the north. (Darling, 2009).

## 5. Suakin Beach:

Recently open beach areas areconsidered interesting destination since it is safe in the time of COVID-19 pandemic. Suakin beaches are characterizes by its calmness and attractive for tourists who are escaping from noisy polluted cities. In comparison with other beaches all over the world Suakin beaches can be considered among the least polluted beaches (Figure3).

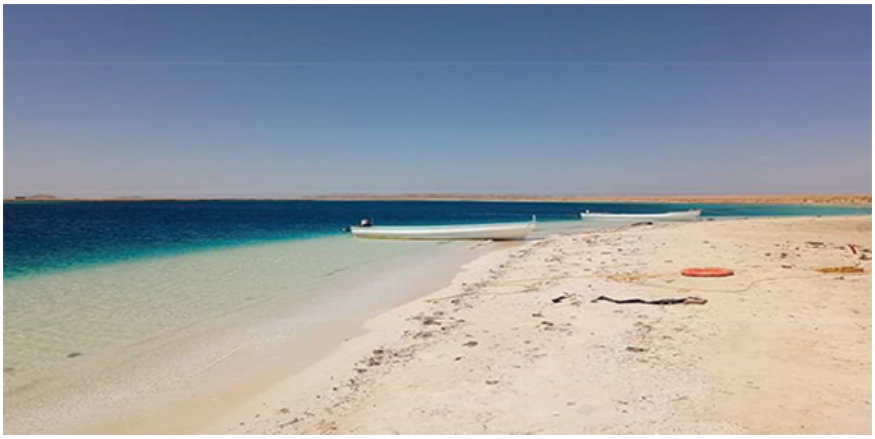

Figure3: Suakin Beach

## 6. Mangroves:

Mangroves are evergreen trees or shrubs distributed in the lagoons, bays, and inter-tidal areasin the tropical and subtropical regions of the world between, approximately, 30° N and 30° S latitude (Giri et al.,2011).Mangroves represent one of the important attractive ecotourism destinations. They provide a nursery and congregating ground for many fish species (Almahasheer et al.,2016).Supporting abundant and diverse variety of wildlife, including some endangered species. Moreover,they enhance tourism, aesthetical, cultural, and spiritual values (Fig.4).Mangroves have inherent right to exist independent of human interest in them (such as heritage and biodiversity conservation) due to its history, beauty, and biodiversity of its associated fauna.

Where, they are important nesting, feeding, and roosting sites for several birds such as the Goliath heron, Pink-backed pelican, reef heron, and the black kite. Approximately 2 million emigrant birds including waders, herons, egrets, kingfishers, pelicans, ospreys, and cormorants use these forests as a resting site (PERSGA/GEF, 2004).

They provide trophic support and structural habitat for many invertebrates such as the polychaete Chloeia flava, sea cucumber for terrestrial animals such as sea birds, deer, and camels. Whereas shrimp and fish from mangroves provide the basis for huge commercial and subsistence fisheries around the World. Mangroves also provide recreational opportunities for freshwater swimming hole, fed by groundwater.

Figure.4. The Mangrove Forest trees

## 7. Sea grass Beds:

Sea grasses are unique amongst flowering plants since they are adapted to live immersed in seawater. They flower, pollinate and produce seeds completely underwater. Sea grasses rank with coral reefs and mangrovesas some of the world's most productive and ecologically significant marine ecosystems. Seagrasses beds are inhabited by sea turtles, fishes and dugongs which depend on them as feeding sources (PERSGA, 2006).

## 8. Coral Reefs:

Coastal coral reef formations of The Red Sea have long been used for recreation sites, sources of food and material for building and traditional crafts. In these respects, they have been imperative to small local populations for at least 3,000 years. At the same time, they became known with much less favor to the increasing number of seafaring traders who navigated these reef-strewn waters. As the Red Sea developed into an increasingly important trading and pilgrimage route, problems of unintended encounters with reefs increased too, so that from early days, reefs of the Red Sea were well known, if not always appreciated (Behairy, 1992).Coral reefsare an attractive tourism asset: they are the second most biologically diverse ecosystem after tropical rainforests (Hilmi, 2012). Red Sea coral reefs represent a touristicpotential for the area. Sudanese Red Sea is famous for its attractive and mostly pristine habitats, particularly, its coral reefs. Coral reefs are one of the most diverse and magnificent ecosystems of the Red Sea, forming heterogeneous habitats with beautiful corals. They provide a variety of ecosystem goods and services. Reefs provide barriers to high wave action that buffer coastlines and beaches from erosion and supply an important revenue base for local economies through fishing andrecreational activities (DeVantier, 2004). Coral forms a skeleton of limestone which had different shapes e.g. cub or tubular or finger like shaped. They live in coral colonies, which may be centimeters to several meters in size. Different kinds of corals occur in different areas of the reef. All these types of reefs provide a shelterto a diversity of marine life. They also offer protected areas for snorkels and shallow-water divers, (Kemp et al., 2003).

## 9. Suakin Archipelagos:

Suakin Archipelago (18°50'N 38°00'E) is the largest group of coralline islets lying offshore to fringing reefs on the Red Sea coast of Sudan, which has been proposed for IUCN category II, National Park. There are 30 islets in the archipelago. They cover an area of about 1500 km2 extending south-eastwards from Suakin Port to Ethiopian border and all are uninhabited. Most of them are less than 1 km long, but two, Talla Talla Saghir and Talla Talla Kebir, are 5 km in length.All the islets are largely barren rocks, with low vegetationgrowing only on the sandy fringes. Low halophytic bushes grow on fossil reefs, and on some of the smaller islets which are usually fringed by coral reefs (Moore and Balzarotti, 1983). They are breeding areas for diverse sea birds (Fig.5), mollusk and invertebrate creation.

Figure 5: Birds on Suakin beach

## 10. Marine Life:

The Red Sea is famous for its plants and animals, some of which are exclusively found in the Red Sea State. Among the common fish in the Red Sea are the Tarpon, Giant Herring, Salmon Herring or milkfish, Soldier fish, Goggle Eye and Rock Cod. There are also more than 320 species of sharks, among them such veracious predators as the Tiger Shark and Hammer head Shark. It should be noted, however, that unless irritated or attracted by blood, sharks are peaceful animals and, shark attacks along the Red Sea coast are very rare. In addition, several species of whales found home in the Red Sea, namely the Blue Whale, a 15 m-long giant which feeds on plankton, and the killer Whale, which poses no threat to humans. The Whale Shark, 8 to 10m in length, is a jolly, plankton- eating whale that befriends fishermen (Sheppard etal., 1992,PERSGA, 2006).

## 11. Cruise Tourism:

Suakin provides a sheltered anchorage on the coastline it is safe and relatively easily navigable for wooden sailing vessels ranging from small local fishing vessels to larger world ocean-going ships. This sheltered anchorage will encourage cruise tourism which depends on board and off.

## Conclusions:

The present paper provides the international tourist with elements of natural attraction in Suakin city.Many options of natural elements were shown to introduce Suakin city to ecotourism world. Suakin was famous with its historical tourism. Since ecotourism depends on the quality of the environment, Suakin city is pristine and relatively undisturbed city, so it can be a very attractive destination area for those who are interested in nature and natural beauty.Different activities related to ecotourism can be practiced in Suakin whichremains as one of the most mysterious and attractive cities in eastern Sudan.

## Recommendations:

- Suakin has the potential of ecotourism, therefore, to develop and promote sustainable tourism in the area we propose the following:
- Build strategies and action plansto strengthen polices and awareness campaigns to the local communitties to promote ecotourism.
- Buildingthe local infrastructure and tourist villages and resorts along Suakin Red Sea coast.
- Respect local traditions & cultures and promote the use of indigenous knowledge in natural resources management and ecotourism implementation plans.
- Establish and increase a series of protected areas including marine national parks and nature reserves.

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