

Saint Martin: The Coral Island

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Abstract: *St. Martin's Island is carpeted by sandy beaches all around, its sunrise and sunset in the middle of ocean embedded and protected by colourful coral reef which itself is a scenic beauty, and many other attributes fulfil every tourist's desire and satisfaction. It is natural wonder in the middle of the ocean the island is built by coral reef formed from limestone and the island is protected by limestone, which is used in many usefully purposes for human.*

Snorkelling and scuba diving at Marine Park is very popular tourist sports particularly in the vicinity of coral reef where beautiful colourful fishes and coral fishes resides happily and it can be enjoyed only through snorkelling and scuba diving. Underwater colourful coral watching is very popular tourist event around the world and popularity of snorkelling and scuba diving is growing fast.

The Island is also called "NarikelJinjra" (meaning "Coconut island") as the island is full of coconut trees. This is one good thing that has happened at the island – the huge plantation of exotic coconut palm. It is a good deterrent against beach erosion, but most importantly every part of coconut tree is useful for various purposes – its tree trunk, leaf, roots, coconut fruit – drinks, kernel, and fibres are very useful. Coconut drinks are healthy alternative to potable water and good source for quick cash earnings, similarly all other parts of coconut trees can be used and sold for a profit.

Sea Turtles are harmless reptile bring special attraction to the tourists, but they took they tirelessly and constant cleans the marine water around the world, protect marine fishes, supply all the nutrients to millions of marine animals large and small, therefore healthy growth of sea turtle around the world is vital for the growth of fish resources. Female sea turtle comes to sandy beaches for nesting and laying eggs. Unhatched turtle eggs provide high-quality nutrient in sea shore and help grow beach vegetation and reduce shoreline erosion. Mangrove habitat and seagrass beds and micro-algae as essential element of coral reefs for its survival and longevity. They provide nourishment, nursery, protection of thousands of marine animal particularly fish species, that why coral reef is so resourceful for fish reserve.

The island is famous and very popular to the tourists for bird watching - thousands of residents, migratory, and seasonal bird makes their way to avoid biting cold of the west and polar region – makes it a bird paradise. The island is conveniently lying along the highway of bird's migration route. The island used to receive fifty percent guest birds arrives from Asian – Australasian flyway and Central Asian Flyway. If the lagoons are excavated back to its original form and shapes, with modern element of sanctuary in place, the island has the potential to become a bird watching venue of the world.

Index Terms:

St. Martin's Island, Offshore Tourism, Bay of Bengal, Rocky Coral Reef, Scuba Diving, Snorkelling, Anthropogenic, Sandy Beach, Bird Sanctuary.

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I. Introduction.

In 1926 the District Collector of British the British Government Mr. Martin brought this island under settlement record since then the island was named after him as St. Martin's Island. St. Martin's Island (Fig. 1) is quite small about 8 sq. km in size and one can easily walk around the sandy beaches of the island in a day. It is about 9 km south of the Cox's Bazar – Teknaf, peninsular tip and forming the southernmost part of Bangladesh. It is also 8 km west of the northwest coast on Myanmar. From 1989 to 2004 there was a restriction for residential Bangladeshis from travelling to St. Martin's island, only the non-residential Bangladeshis and foreigners were permitted on the island. The travel restriction is withdrawn in 2004 and since then the St. Martin's island has become the most popular tourist destination in the country. During winter season (December – January) and the extended dry season (October – March) about 3,000 visitors come to St. Marion Island everyday but the visitors keep coming on a reduced number every day until the daily ship service between Teknaf and St. Martin Island is suspended (April – September) due to rough sea.

The earliest settlement started 250 years ago by Arabian Sailors. In the old days almost, every inhabitant primarily lived on fishing. The first group of migrants came for settlement at S. Martin's Island during the 1980s. Since then the migrant population steadily increases. In 1996 there was a population of around 3,700 people belonging to 535 families (Paiker, 1996); in 2000 the population was in 4,766 from 791 households (Islam, 2001); in 2005 the population was 5,726 from 818 households (Poush, 2006a); and the island has a total of 7000 inhabitants (Haider, 2008).

One can enjoy sunrise (Fig. 4) and sunset (Fig. 5) from the same the same spot in the beach virtually no traveling required. The green colour of the island is the gift of coconut trees (Fig. 3) along with other shrubs and native vegetation (Fig. 6).

Location.

The St. Martin's is located in the tropical zone, located between latitude 20° 34' – 20°39' N and longitude 92° 18' – 92° 21' E, separated from mainland by a channel that is about 9 km wide (Hossain & Islam, 2006) in the continental shelf area with a maximum depth of 24 m. The island is designated with distinct names, from north to south they are Uttarpara, Golachipa, Dakshinpara, and Cheradia. Uttarpara, Golacipa and Dakshinpara of the island is higher and remains dry all the year round. While Cheradia is in the southern extremity and is known as "CheraDwip". During high tide the CheraDwip is inundated by water and gets cut off from the main island. Nobody leaves there only the tourist go there to see the beauty of coral island, they go there early in the morning and come back to the afternoon to the main island. The island was devastated by a cyclone in 1991 but was unaffected by the 2004 tsunami. Subtropical cloudburst climate that prevails over Bangladesh mainly controls the weather of the island.

It is an offshore island located in the Bay of Bengal. The actual shape of the island (Fig. 2) is somewhat elongated and the elongation is from north to south. The best way to get to St. Martin's Island is by air travel from Dhaka to Cox's and then by road transport from Cox's bazar to Teknaf and finally by ship or boat from Teknaf to St. Martin's Island by marine transport.



Fig. 1. Actual shape of St. Martin's Island (source:

<https://www.bing.com/images/search?q=location+map+of+st.+martin%27s+island+in+bangladesh&FORM=HDRSC2>).



Fig. 2. Location Map of St. Martin’s Island. (source).

(http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental_profile_of_st_martins_island.pdf).

II. Literature Review

The island was named after Mr. Martin in 1926 who was the last District Collector of British Government, who brought island under settlement record. The first group of migrants came to the island in the 1980’s. Since then the number of migrant rose steadily and by now the population is 8170 with a household of 896 (Ahammed et al, 2016).

The entire island is blanketed with exotic coconut trees (Fig. 3) hence the islanders popularly gave the name of “NarikelJinjira (Coconut Island)”. Every part of Coconut tree is precious. It is an important source of long term cash earning. Almost every household have some coconut tree in their courtyard, but the commercial growers can safely rely on income from coconut trees to maintain their families.



Fig. 3. Outlook of the DaruchiniDwip Blanketed with Coconut Palm. (source:

http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental_profile_of_st_martins_island.pdf).



Fig. 4. Sunrise in the Ocean.

(source:<https://www.bing.com/images/search?q=sunrise%20at%20St.%20Martin%27s%20Island%20of%20Bangladesh>).



Fig. 5. Sunset in the Ocean. (source:

<https://www.bing.com/images/search?q=sunset%20at%20St.%20Martin%27s%20Island%20of%20Bangladesh>)



Fig. 6. Screw Pine – A Native Vegetation of St. Martin's Island (Source:

<https://www.bing.com/images/search?q=native%20tree%20of%20St.%20Martin%27s%20Island%20of%20bangladesh&qs=n&fo>).

The eminent scholar and eminent educationist, Dr. Humayun Ahmed, had many qualities, He is a scientist, an internationally reputed novelist, a drama writer, and a famous TV producer in the sub-continent. He came to St. Martin's Island on a holiday, and fell in love with the beauty of the island. He quickly decided to write a novel with the beauty and lifestyle of St. Martin's Island which he completed 1007 and gave the name of "DaruchiniDwip" resembling the island. As a sign of respect and love to the famous novelist the general people honoured the island with a new name as "DaruchiniDwip" (Cinnamon Island)" in appreciation of his (Dr. Humayun Ahmed) contribution to Bengali literature.

Population Statistics and Livelihood.

Several decades ago almost every islander were fishermen. That scenario is changing rapidly with the arrival of migrant in big numbers on a regular basis. The demand and opportunity of other profession were gradually opening, and the present population came is counted as 8170 head and the number of families are 896 (Ahammed et al, 2016). By most of the adult population have one wife, but 58 families have two wives and six men have three wives. All families own a house but only 48 household (5% of the households) have sanitary toilets. Due to lack of hygiene, and scarcity of potable water, most children suffer skin disorder. The problem even gets worse during rainy season,

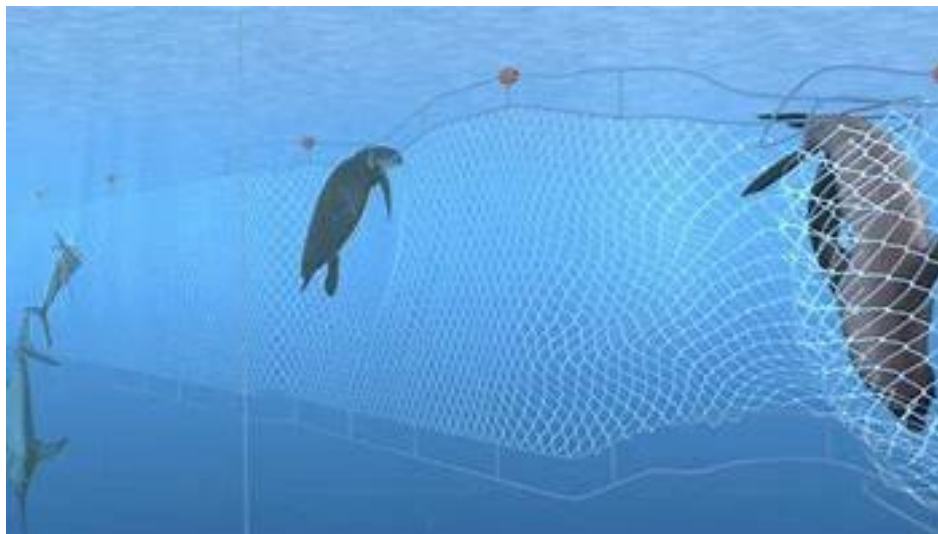


Fig. 7. Fixed gill net not ideal (source: <https://www.bing.com/images/search?q=gill%20net&qs=n&form=QBIR&sp=-1&pq=gill%20net&sc=8-8&sk=&cvid=435530015>).

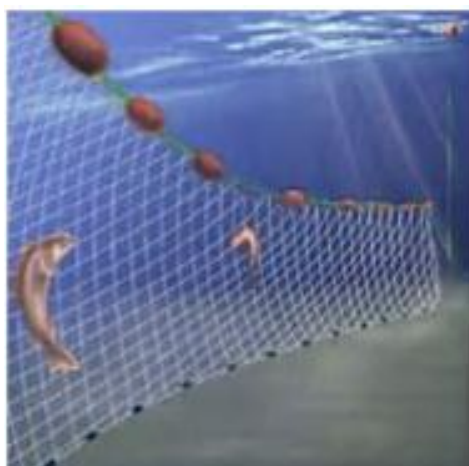


Fig. 8. Rock-weighted gill net (source: <https://www.bing.com/images/search?q=rock-weighted%20gill%20net&qs=n&form=QBIR&sp=-1&pq=rock-weighted%20gill%20>).

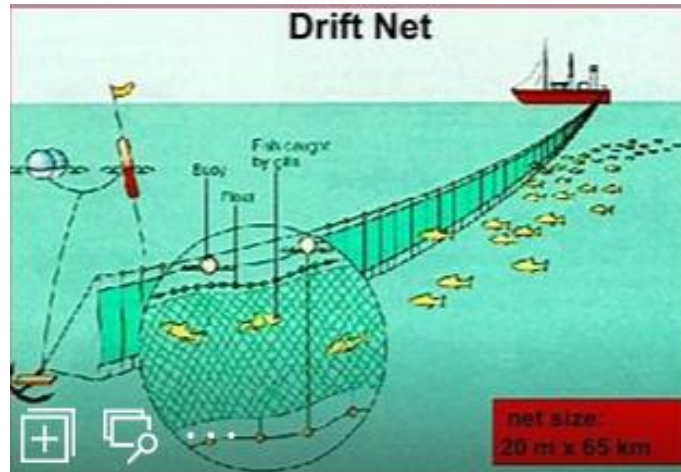


Fig. 9. Drift nets are used at St. Martin Island. (Source : <https://www.bing.com/images/search?q=drift%20nets&qs=n&form=QBIR&sp=-1&pq=drift%20nets&sc>).



Fig. 10. Seine nets are used at St. Martin Island. (Source: <https://www.bing.com/images/search?q=seine+nets&FORM=HDRSC2>).

During heavy rain ground water gets contaminated. The ground water is the only source of fresh water which is very shallow, and the aquifer is inadequate to meet the demand of the local resident. Green coconut drink does a good replacement of fresh water demand which is even healthier than the potable water. It is very popular among the tourists and it is readily available everywhere. During winter It is a good source for earning cash from the tourist to supplements



Fig. 11. Coconut is the most favourite drink among the tourist <https://www.bing.com/images/search?q=livelihood+of+islnder+at+st.+amrtin%27s+island+in+bangladesh&FORM=HDRSC2>).

many families' income. Exotic coconut trees (Fig. 11 and 12), are very useful, and the coconut juice is the best alternative to potable water and is very healthy for everyone, and particularly preferred by tourists.



Fig. 12. Coconut bunch is ready for the tourists (left) and coconut garden (right). (source: <https://www.bing.com/images/search?q=coconut+trees+at+st+martin+in+bangladesh&FORM=HDRSC2>).

In 2005 a survey of occupation of 728 household showed that 28% engaged in fishing, 22% business, 11% farming, 10% service and 9% in day labour (Poush, 2006b). The main fishing season begins in September and continued until April. The main fishing gears are fixed (Fig. 7), rock-weighted (Fig. 8), drift(Fig. 9) gill nets, and seine (Fig. 10) nets are used. Huge varieties of Fish are caught every year near coral reef. But the island also famous for dry fish processing and export (Fig. 13) to other part of the country. Dry fish is very popular in Cox's bazar and in St. Martin's island area and is very profitable. The fish resources are the gift of coral reef, mangrove forest and seagrasses, that provide protection and supplies nutrients to thousands of fishes and other animals, particularly commercially profitable shrimps and lobsters (Fig. 14) that earns millions of dollars for the national economy.

By 2008 the island had the following infrastructures: 17 hotels, 12 restaurants, a government office, two mosques, three primary schools (including one school converted for the use of cyclone shelter), a large new hospital, a light house, a naval base and a police station.



Fig. 13. Dry fish is available everywhere. (source: <https://www.bing.com/images/search?q=livelihood+of+islander+at+st.+amrtin%27s+island+in+bangladesh&FORM=HDRSC2>).



Fig. 14. Lobsters and Pomfret are tourists favourite at St. Martin Island. (source: <https://www.bing.com/images/search?q=shrimp%20and%20lobster%20at%20st%20martin%27s%20island%20of%20bangladesh>).



Fig. 15. small children collect sea shells at the beach. (source:

<https://www.bing.com/images/search?q=livelyhood%20at%20st%20martin%27s%20island%20in%20banglades h&qsn&form=Q>

Some poor families supplement their income by the collection of coral and other sea shells and then selling them to the tourists and use their small children (Fig. 15) for doing that job.

Table. 1. Primary Occupation of Household Heads at St. Martin’s Island (source: Ahammed et al, 2016).

No. of Occupation	Primary Occupation	No. of Household Heads	Percentage
1	Fishermen	485	57.0%
2	Businessmen	252	30.5%
3	Framer	67	5.0%
4	Service	54	4.5%
5	Technician	18	1.5%
6	Day Labour	8	0.6%
7	Barber	3	0.2%
8	Community Support	9	0.7%
Total		896	100%

In 2016 the total number of households gone up to 896 families of which 237 families own shops. The primary occupation (Table. 1) of the islanders are detailed in the above table.

Mode of Transport and Serviceability.

For any one wishes to travel to St. Martin’s Island must make themselves available to Teknaf port and from there the only mode of transport is marine transport by large ship and quite reliable and safe to travel offshore island. From Dhaka city the quickest route to travel to Teknaf is by air to Cox’s Bazar and then by motor car or bus or coach travel by road. In March 2017 there were five shipping liners operate daily services and they are: 1. Shahid Sher Niabal, 2. LCT Kutubdia (Fig. 16), 3. Eagles, 4. Kearsi Cruise & Dine (Fig. 17), and 5. Kearsi-Sindbad. All ships and cruises start from Teknaf to St. Martins around 9:00 AM – 9:30 AM and return journey begins from 3:00 PM – 3:30 PM. This regular



Fig. 16. St. Martin’s Island is only accessible by marine transport from Teknaf Port. (source:

[https://www.bing.com/images/search?q=cruise+service+to+st+martin+island+of+bangladesh&FORM=HDRSC 2\).](https://www.bing.com/images/search?q=cruise+service+to+st+martin+island+of+bangladesh&FORM=HDRSC 2).)



Fig. 17. Multiple good reliable cruise ship serve daily to St. Martin's Island. (source: <https://www.bing.com/images/search?q=cruise+service+to+st+martin+island+of+bangladesh&FORM=HDRSC2>).



Fig. 18. Environmental friendly rickshaw van pedal bike at St. Martin's Island. (source: <https://www.tripoto.com/trip/bangladesh-adventure-2-sailing-to-st-martin-island-56802f7332e3a>).

daily cruise service continues from October to April every year anaturaldisad rest of the year the cruise service is not available due to rough sea. At the St. Martin's Island, the only transport is rickshaw van pedal bike (Fig. 18) to move around the island on concreted road. It is very enjoyable and safe.

Tourism.

Between 1989 to 2004 the local Bangladeshi resident were denied travelling to St. Martins island and only the overseas travellers were permitted to travel to St. martin's Island. When the restriction for domestic travellers is withdrawn in 2004 very quickly St. Martin's Island became the number one popular tourist destination in the country and the popularity is increasing every day. The recent developments in tourism infrastructure, hotels, motels, and resorts has attracted more domestic traveller as well as oversea visitors than ever before. Walking all around the sandy beaches blanketed by crystal clear blue ocean gives immense pleasure to every visitor. The sandy beaches are a gift to Parrot fish exclusively resides at coral reef island. The island is guarded by rocky corals, protected by the rocky limestone from erosion, wave energy and elements of natural disaster and the beauty of the mother nature, its pristine marine environment, serenity and tranquilities appeal every visitor. The sun-rise and sun-set in the middle of the ocean fills your heart with joy. It is not only recognized as number one popular destination in Bangladesh rather it is now well regarded as one of the most popular destination of Indian sub-continent.

Most visitors come during Winter season (December – January) but tourism season continues most of the Dry season that extends from October to March every year. During holiday season (October – April) each year about 1 million people visit St. Martin's Island and the number are increasing every year.



Fig. 19. Welcome to tourist heaven (source:<http://visitbangladesh.gov.bd/beach-holiday/st-martins-island/>).



Fig. 20. Tourists are welcome. (source: <https://www.bing.com/images/search?q=tourism+infrastructure+at+St.+Martin%27s+island+of+bangladesh>).



Fig. 21. Recreation available to tourist. (source: <https://www.bing.com/images/search?q=tourism+infrastructure+at+St.+Martin%27s+island+of+bangladesh>).

For the comfort and pleasure of the tourist some infrastructures (Fig. 19) has been developed to welcome the visitors and others are developed (Fig. 21) to spend their fun time in a relaxing environment. The booming tourism means makes a great contribution to the local economy, keeps business people busy, create jobs for the islanders, and more money in every households. Current format is like an ordinary mass tourism practice. During our study tour in March 2017, it came to our notice that tourism in this fashion cannot be sustainable although it earns lots of money, but it is doing more harm than good to the environment, to the biodiversity, to the coral reef, to the fish resources, and fauna and flora in general. Time has come to assimilate tourism with the conservation of biodiversity. From now tourism must continue in the form of “Regulated Tourism, Enviro-tourism, Eco-resort tourism, Water-Sports-Tourism and Guided Tourism”. The daily intake visitors must be reduced to a limit that is sustainable at the same time we recommend that “Guided Tourism,

ecotourism and Managed tourism” can be open for public throughout the year not only during dry season (except during cyclone, hurricane, typhoon, tornado, and similar natural disaster etc). This is the best way to reduce the numbers.

Biodiversity – An Excited Tourist Attraction.

Tourists come for fun, excitement and lots of pleasure. The global tourists (as well as the domestic traveller) are wealthy and rich, so they expect seamless tourism experience, at world class tourist venue with unlimited fun at the theme park and soon we hope to upgrade St. Martin’s Island as a tourism venue close to international standard.

Underwater Colourful Coral Reef– An Inspiring Tourist Attraction.

Colourful display of coral reef (Fig. 22) and dancing colourful fishes (Fig. 24 and 25) around the coral reef is breathe taking. To become a part of that dancing one has indulged in to snorkelling or scuba diving. This sensational and



Fig. 22. Colourful display of rocky coral reef. (source: <https://www.bing.com/images/search?q=colourful%20rocky%20coral&qs=n&form=QBIR&sp=-1&pq=colourful%20rocky>).

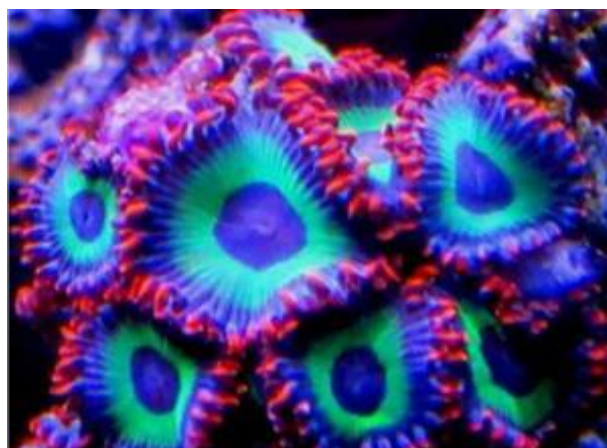


Fig. 23. Zooxanthellae - the power house of colours. (source: <https://www.bing.com/images/search?q=colourful%20soft%20coral&qs=n&form=QBIR&sp=-1&pq=colourful%20soft%20coral&>



Fig. 24. Coral reef habitat is always colourful. (source: <https://www.bing.com/images/search?q=colourful%20fishes%20of%20coral%20reef&qs=n&form>).



Fig. 25. Coral associated fish is charming. (source: <https://www.bing.com/images/search?q=Coral+Reef+Fish+Species&FORM=IRIBIP>).

And spectacular colour fair can only be seen near coral reef and that is why every coral reef island is popular tourist destination and St. martin's island is no exception. That is why both domestic as well as the international visitors go to St. martin's island in their thousands.

The display of colours is responsible by the following phenomenon: 1. Zooxanthellae algae (Fig. 23), is symbiotically related with coral poply; 2. Photosysthetic reaction takes place, when zooxanthellae inhales CO_2 and O_2 is released; 3. Chlorophyll pigments comes to the party with colourful display; and 4. Sun light penetrate to initiate photosynthetic reaction. The complex process of all the elements ends up with colourful display at coral reef. The zooxanthellae are pigment cells that takes up residence inside the coral tissue. It is an innate mixture of the cells that give coral its generous display of colour. Water absorbs low wave lengths so many fish are bright red as a camouflage colour.

Sea Turtle – An Exciting Tourist Attraction.

Several decades ago Sea turtles were seen everywhere in Bangladesh and St. Martins Island is the best place for nesting sea turtle, laying eggs, hatchling and raising sea turtle. They come all the way from Sundarbans during breeding episode. The beautiful colourful creatures are a tourist delight. Many tourists come to see the wonderful display of sea turtle. Most common sea turtles are:

Olive Ridley Turtle (*Lepidochelys olivacea*) (Endangered).

They are currently the most abundant of all the sea turtle. They are named for their pale green



Fig. 26. Olive Ridley Turtle.

(source:<https://www.bing.com/images/search?q=Olive%20Ridley%20Turtle&qsn&form=QBIR&sp>). carapace or shell (Fig. 26). May nest up to three times a year. The turtle are omnivores, eating A variety of prey including crabs, shrimps, lobsters, sea urchins, jelly fish, algae and fish.

Green Turtle (*Chelonia Mydas*) (Endangered).

The Green turtle (Fig. 27) is not named for the colour of its shell, but for the greenish colour of its skin. It inhabits tropical and subtropical coastal waters around the world and has been observed



Fig. 27. Green Turtle (source:<https://www.bing.com/images/search?q=Green+turtle&FORM=HDRSC2>).

clambering onto lands to sunbathe. Female Green Turtle crawls out on beaches, dig nests and lay eggs during night. May live up to 80 years. Green turtle is very popular for its “turtle soup” and is intensely hunted. Commonly they are entangled into fishing net and die their if they are not released. These species have reduced sharply but they still come to nesting at St. Martin’s Island in smaller numbers.

Hawksbill Turtle(*Eretmochelys imbricate*) (Critically Endangered).

The hawksbill turtlehas a sharp curved beak (Fig. 28). It is usually found in shallow water near coral reef. It survives on sponges which is toxic to many fishes and coral reef It is caught for its meat but most of the time it is hunted for its “Tortoise Shell”. It is last seen to St. Martin’s in 1998, and since then they have disappeared for a better nesting location.



Fig. 28. Hawksbill Turtle

(source:<https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=http%3a%2f%2f2.bp.blogspot.com%2f-b6qT1Wwv1Eg%2fUM1Vqg41pFI%2f>).

Although Hawksbill breeds throughout the year, the peak period occurs between January and February. Sponges make up a major part of the diet of Hawksbill turtle, although they also feed on seagrasses, algae, soft corals and shellfish.

Water Sports – A Fascinating Tourist Attraction.

Water is loved by everyone so is water sports. That is why is snorkelling and scuba diving is very popular worldwide especially young men and women – which constitute the most tourists. St. Martin’s Island in its infancy when it comes to snorkelling (Fig. 29) and scuba diving (Fig. 30). It a wonderful sport that does two important job at the same time. Firstly, snorkelling is the best way to carry out under water research particularly it helps enormously to look after marine water health and its biodiversity. And Secondly, tourists enjoy coming into close contact with the wonderful world of marine animals and colourful world coral reef without harming them.



Fig. 29. With snorkelling you can play with marine animals (sea turtle).

(source:<https://www.bing.com/images/search?q=snorkelling&id=4BBCBA7F31508C36341034C15A24D26DE6D57B25&FORM=IQRBA>).



Fig. 30. Marine Animals treats Scuba Divers as a fellow companion. (source: <https://www.bing.com/images/search?q=scuba+diving&FORM=HDRSC2>).

Sr. Marin's Island has the huge potential if we can raise the quality and standard of snorkelling and scuba diving into international standard and open the door for an international venue, it will in one hand earn plenty of foreign currency to develop the of the island, will bring international fame in water sports.



Fig. 31. Flamboyant Sea Grasses are element of thrilling attraction. (source: http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental_profile_of_st_martins_island.pdf).

The ideal place of snorkelling is warm water, calm seas with crystal clear water, which make the St. Martin's Island as the ideal spot for snorkelling. Scuba diving is ideal to go deep inside the water to examine ocean floor or bottom and seagrasses health (Fig. 31), Marine animals and marine environment. If you fancy the beauty of the ocean world, coral reef, and it's under water resources scuba diving is the answer.

Lone Coral Island on its own – an Unstoppable Tourist Attraction.

Australian coral reef experts (English et al, 1997) and the Canadian Coral Biologist (Tomascik, T., 1997) has carried out a detailed investigation on coral resources at St. Martins Island. It was identified approx.66 coral species,234 species of fish, 98 species of fish are coral associated, 14 species of algae and several seaweeds are recorded. Under the leadership of Professor Maruf Hossain (Hossain, M. M and Islam, M H, 2006) carried out another detailed investigation of coral reef



Fig. 32. Rocky corals are made of limestone. (Source: http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental_profile_of_st_martins_island.pdf).



Fig. 33. Rock corals protects the island from natural events. (source: http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental_profile_of_st_martins_island.pdf).



Fig. 34. Display of colourful reef at St. Martin's Island (source: http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental_profile_of_st_martins_island.pdf).

resources also came-up with similar results. The beach is created by Rocky Corals (Fig. 32) and on the foundation of rocky corals (Fig. 33) which protect themselves from ocean energy and other natural disaster events. Display of colourful diverse coral cluster(Fig. 34) at St. Martin's Island is a joy for every visitor.

Global Birds Sanctuary – a Thrilling Tourist Attraction.

For many decades St. martin's island is famous for bird watching, as it is conveniently located along the international flying route for birds or highway of bird migration. During winter season they come in their thousands to escape biting cold of the west or the north pole, they rest and mingle with hundreds of local and national birds (Fig. 35 to 37). The Lagoons, those were uses by birds as a natural sanctuary have been reduced by residents for other purposes and were unkind towards birds. As a result, they are coming with reduced number and other birds have stopped coming to the island altogether. The natural sanctuary needs urgent upgradation with modern touch to make it



Fig. 35. Birds at St. Martin's Island.

(source:<https://www.bing.com/images/search?q=birds%20sabctuary%20at%20st%20martin%27s%20island%20in%20bangladesh>).



Fig. 36. Doel - The National Bird on Bangladesh.

(source:<https://www.bing.com/images/search?q=birds%20sabctuary%20at%20st%20martin%27s%20island%20in%20bangladesh>).



Fig. 37. Brown headed gulls is a joy for every visitor.

(source http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental_profile_of_st_martins_island.pdf)

more bird's friendly environment, with additional facilities that birds loves. Then the St. Martin's Island will become a famous tourist attraction for bird watching venue of the world. More recently Jahangirnagar University has successfully created a natural environment for bird sanctuary, to which many migratory birds as well as national birds come and spend a wonderful time during winter time.

When a Protector becomes a Predator.

The local inhabitant and resident are uneducated and under educated. Many them are poor and unemployed. Some of them are unsure how they will buy their basic needs to feed their families. Many families are dependent fully on income from the tourists and lion share of that comes through selling coconut juice. They have no idea about biodiversity and are unaware about the consequences of harming them, hunting them in big numbers. Some of the inhabitant over the years regularly culling the different types of sea turtle / turtle / other animals. This deliberate destruction of biodiversity over the years have reduced them to a dangerously low level.

Some tourists targeting hunting turtle with the help of local people. In others instances some locals sell live sea turtle and their eggs, breaking live coral and shells to visitor for a quick cash profit. Fishing is the principal sources of income for majority of inhabitant of the island. They come from a poor family with little or no education. These fishermen are doing their occupation generation after generation. Ironically, they themselves are the biggest threat for the survival of biodiversity of the island. The local islanders have become the most dangerous predator when they should really become protector.

The government has declared the St. martin's Island as "Ecologically Critical Area (ECA) in 1999. Following the declaration of ECA the government has implemented by a ministerial degree to elaborate the Nature Reserve Rules in protecting the environment of St. Martin's Island. It is forbidden:

To disturb or remove, distress or endanger animals, their eggs, hatchling sites, or remove them.

To pick, destroy, introduce, or remove plantlife.

To hunt, fish by lines, net or basket, spearfish, with a spear-gun or similar instrument, or collect living or dead animals.

To through away rubbish or pollute the environment with any substance liable to compromise the quality of water, air, or soil or of the site, or the integrity of the wild and plant life.

To throw away rubbish of any type in the reserve.

To disturb the peace through excessive noise, except for activities authorised by the decree.

To camp under canvas, in a vehicle of under any other shelter. However, the "Prefet" may authorise and oversee camping with no shelter.

To endanger the natural environment by making fire outside the designated area, or erect signs other than those required for public information or reserve management.

To water Ski or Jet Ski anywhere in the reserve.

To gather minerals, fossils, or archaeological remains.

To fly over the reserve at an attitude of less than 300 meters.

The ministerial degree came with the educational message. Please respect our wild and plant life and take your rubbish with you. Do not support illegal trade in natural species (Shells, Cactus, turtles and others).

The rules are there, the law is there, but there is a great lacking in its implementation. Insufficient manpower, inadequate skills and lack of honesty has made the protection of biodiversity lot harder than it should be. Enough qualified manpower is highly desirable to save this iconic tourist wonderland.

Recommendations.

1. Anthropogenic Threat (Destruction).

1a.

Lack of education, illiteracy, followed by poverty is the prime anthropogenic cause of destruction, elimination of this biodiversity. Everyone must be enrolled for mandatory intensive training program, but the poorest and the most disadvantages group need to be identified and put them on a mandatory paid training program first. So that they do not have to worry about their family expenses. Once the training is completed the government must consider them to be employed as a coast for the protection of biodiversity, as they were the number one predator of the natural resources.

1b.

International cooperation and collaboration is highly recommended to protect tourism and biodiversity at St. Martin's island. The death of Mangrove habitat, sea grasses, micro-algae in the ocean, in invariably the death of coral reef in the island. The island will disappear slowly, thousands of islanders will be homeless and that would be catastrophic.

1c.

Sea turtle is the best indicator of marine health. Sea turtle protect coral reef, supply nutrients to coral reef, fishes and other marine animals. Without sea turtle marine environment will not liveable for many other marine animals and eventually die. Fish resources will disappear, common people would not be able to buy fishes any more.

1d.

Coral reefs thanks to their diversity, provide millions of people with food, medicine, protect from natural disaster, and venue for fishing and tourism. Beautiful sand beaches are gift of parrot fish.

1e.

Reducing daily intake of visitors that is manageable and sustainable through ecotourism, managed tourism, guided tourism, without alienating conservation of biodiversity. Author recommend the island should be open for visitors every single day of the year. It will conserve biodiversity, islanders will get more employment opportunity, and visitors will be happier with fewer tourists, quality service will can be provided, island economy will grow rapidly.

1f.

If required government must formulate new rules and regulation especially applicable to coral reef island at St. Martin's Island. The island must be saved at any cost for the for most popular tourist destination of the country, but not at the expense of biodiversity, we want to flourish both. People go to St. Martin's island to watch the beauty of the island, relaxation of the body and mind, whereas colourful biodiversity also please the mind but more importantly, the island can't survive without biodiversity and slowly disappear.

2. Global Threat (Destruction).

Global threats are a problem for every nation in the world. Therefore, a unified solution has to come from the global community. Geographical location made us as one of the most vulnerable most nation of world and is worst affected by Global warming and greenhouse gas effect. Consequently, sea water temperature is going up, sea level is rising, increased natural disaster event, increased runoff from various sources causing incensed sedimentation, beach erosion, sea water acidification, and coral bleaching are most important, and they are affecting coral reef. The world community has come up with rational solution to solve these problems successfully.

Sea water during the last 40 yearshas risen about 0.45 o C (Akil, 2010; Moudud, 2010) including rising sea water acidification and coral bleaching events have destroyed approximate 22 coral species in the St. Martin's Island (source: DoE, Bangladesh).

III. Conclusion.

The only coral reef island in the Bangladesh, blanketed by sandy beaches around it make every visitor happy, the sunrise & sunset in the ocean is breathtaking, and it's crystal clear blue water makes the bottom of the visible with colourful display is sensational, and its tranquil environment provides heavenly pleasure for every soul. The nature gave all the element to become one of the most popular tourist destination of the world.

Amazing rocky coral, colourful marine life, beautiful bird sanctuary, dancing of sea turtles adds another dimension in the island that attracts every visitor to come back again. It is a life time experience at St. Martin's Island you can only enjoy if you come to the island, the tourist paradise in the middle of the ocean.

Assimilate tourism management into biodiversity conservation; setting standard and monitoring practice recommended by industry experts. The use of plastic has engulfed our society. polluting environment. Kenya has completely ban plastic in 2017. Implementation of Kenyan example will not only sane coral reef it will bring revolution in the arena of environment.

Being in the Tropical zone, Bangladesh enjoys unbroken sunshine, ideal to bring a revolution in the solar power green energy at S. Martin's island where there is no supply of electricity from the grid. Generator is the only option which requires huge amount of diesel to generate electricity polluting the environment and damaging coral reef. A small up-front cost by government to install solar panels will generate revenues in many sectors, not limited to tourism.

Sea turtle maintain marine health. To save coral reef and the island, to increase fish resources there is no alternative but cultivate sea turtle to raise optimum levels around St. Martin's Island. Otherwise we lose everything, beautiful coral reef, mangrove forest, sea grass beds, all flora and fauna eventually we lose the island itself, the jewel in the crown.

From a global compilation of resources (2008) revealed a net benefit per year is about \$9.6 billion in tourism and recreation sector, and fisheries and biodiversity account for \$11.2 billion and it all comes from the full-fledged top 100 coral reef island in the world and St. Martin's island is included. Bangladesh did not participate in that estimate yet. It is highly desirable that Bangladesh government does participate in the next one and it will be an eye opener that our St. Martin's island is a rare treasure in disguise, we just have to look after it properly and nourish the resources, once it is gone we lose it forever.

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