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## ST. MARTIN'S ISLAND - A TOURIST PARADISE HAS LANDED IN THE MIDDLE OF THE OCEAN ALONG THE BAY OF BENGAL

Dr. Sheikh Mahabub Alam

Chairman and Adviser The Department of Tourism and Hospitality Management The People's University of Bangladesh 3/2 Block - A, Asad Avenue, Mohammadpur Dhaka - 1207, Bangladesh.

#### Abstract

St. Martin's Island is the most popular destination in Bangladesh and a preferred tourist attraction in the Indian-subcontinent and gradually getting global recognition. A natural wonder formed by the rocky coral, built on the rocky coral on the foundation of rocky coral and protected by the rocky coral. This amazing creation of mother nature bring millions of visitors in the middle of the ocean. The stunning coral reef, colourful marine life and crystal clear blue seas, sunrise and sunset in the ocean attracts thousands of visitors every day.

When visitor assimilate with the marine living species through snorkelers or scuba divers, at that point the marine creatures accept visitor as a fellow companion and welcome you without fear and keep dancing until you retire. Therefore, tourism and water sports (particularly snorkelling and scuba diving) become part of the ocean revitalising ecosystem.

Colourful sea turtle is always an extra attraction for visitor. Sea turtles is considered as the most important indicator for marine environmental health. There is no alternative but to increase sea turtle to an optimum level to maintain heathy and resilient ocean. Green sea turtle survives on sea grasses – provide safe-haven for coral reef. Leatherback take away all toxic substances by consuming jellyfish. Olive Ridley provide oasis for fish and seabirds. All turtle maintain marine food web, facilitates nutrients recycling from ocean water to shorelines. Unhatched eggs supply (nitrogen, Phosphorous and potassium) nutrients to support beach vegetation and stabilizes the beach. Sea turtle not only risk ecological extinction, but physical extinction.

The jewel in the crown of the island is the coconut juice, very nutritious drink and is adored by the tourist. Every part of coconut tree is useful – such as household fuel for cooking, tree trunk and leaf are sued for construction materials for hoses and boats, and hard shell is used as a raw material for household decoration. This exotic coconut palm is dominantly cultivated throughout the island, and islanders popularly calls it "NrikelJinjira" (Coconut Island)".

Thousands of residents, migratory, and seasonal bird makes the island as a paradise, and lagoons provides a permanent sanctuary for thousands of beautiful birds resting here as it is conveniently located along the highway of bird's migrationroute. The island is always vibrant with the presence of as much as 85 spices of which 50 species are migratory bird comes from Asian – Australasian flyway and Central Asian Flyway. If the lagoons can be excavated back to its

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original form and shapes, then it will become a glorious sanctuary for global birds and turn into magnificent bird watching venue of the world.

The St. Martin's Island create fatal attraction to tourist and fill their heart with heavenly pleasure, and your once in a life time experience will cherish for your mind for the rest of your life.

**Keywords:** Tourism, River Tourism, Offshore Tourism, Biodiversity, Ecosystems, Rocky Coral, Environment, sea turtle, anthropogenic, Migratory Bird.

#### Introduction.

The St. Martin's Island (Fig. 1) is about 8 km. sq. km. and the island population is about 7,000 people. There are 535 resident islander families of Bangladeshi origin, there are also an additional 61 Rohinga refuge familieswho have settled permanently at the island. Butduring winter (December – January period) about 3,000 visitor come to St. Marion Island on a day trip every day, and during spring (February – March) number of tourist reduces to about 2000 visitor per day but visitors keep coming every day until the daily ship service (between Teknaf – St. Martin Island) is suspended (during 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. But the development of tourism the livelihood is rapidly changing from fishing to business to faming. The central and southern island is mainly farmland and those who work there live on makeshift hut. During tourist season many resident resort to coconut selling as a full-time employment to thousands of visitors.

The island is situated in the north-eastern part of the Bay of Bengal. It is about 8 km west of the northwest coast of Myanmar, at the mouth of the Naf river, serving as a natural divide separating Bangladesh and Myanmar. While being with in tropical belt; its weather is heavily influenced by the subtropical monsoon climate (cloudburst climate) that prevails over Bangladesh.

## Location.

The lone coral island at St. Martin's is located on the southern-most tip of Bangladesh, located between latitude  $20^{\circ} 34' - 20^{\circ}39'$  N and longitude  $92^{\circ} 18' - 92^{\circ} 21'$  E, separated from mainland by a channel that is about 9 km wide (Hossain & Islam, 2006) and form the southernmost part of Bangladesh. The island is 10 km south of southern tilt of Teknaf peninsula and 34 kilometres from Teknaf mainland in Cox's Bazar district. The island (Fig. 2) is located on a shallow continental shelf with a maximum depth of 24 m. The maximum depth of coast of island is only 10 m. Alongside the main island further south there is a small adjoining islandthat is separated at high tide called CheraDwip, during high tide the only the central elevated portion of CheraDwip remains dry and 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. There is a naval base near the centre of the St. Martin's island and is providing valuable contribution for the safety and security of the Islanders as well as the tourist. It is an effective deterrent for the smugglers to stop contraband items to and from the island, harmful for the rocky coral resources

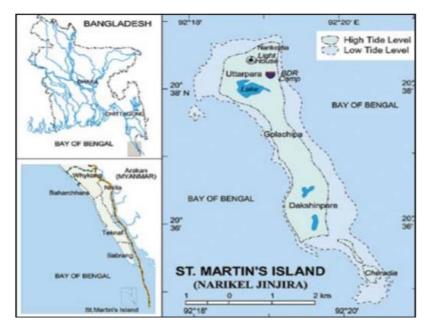
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and useful protection to protect biodiversity. The island was devastated by a cyclone in 1991 but has fully recovered, and was untouched by the 2004 tsunami. Subtropical cloudburst climate that prevails over Bangladesh mainly controls the weather the of the island.



Fig. 1. The Actual shape of St, Martin's Island (source: https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=https%3a%2f%2f4.bp.bl ogspot.com%2f-ulv\_dtXx\_rg%2fVvyjl ).



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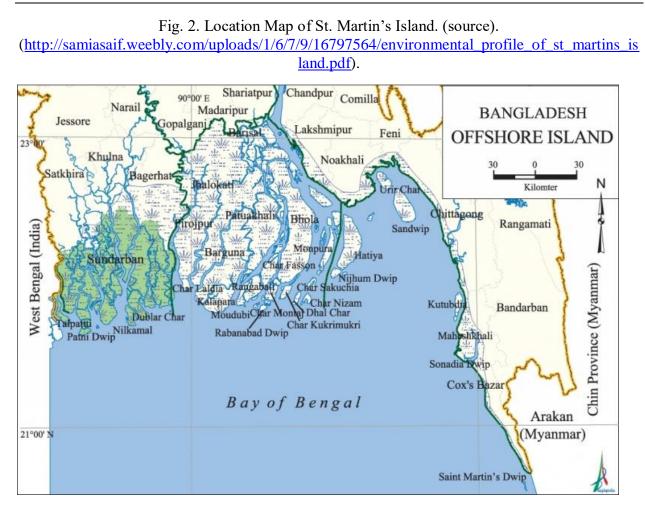


Fig. 3. Location of offshore Island in Bangladesh (source: khttp://en.banglapedia.org/index.php?title=Offshore\_Island)

## St. Martin's Island, NarikelJinjira and DaruchiniDwip.

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. Marion's Island. The island is located on a shallow continental shelf with a maximum depth of 25 m. Radio-carbon dating of the Coquina Limestone cliff located in the central coast of Dakshin Para indicates the age of about 450 years at the base and 292 years at the top (Saif, 2010).

The elevation of the island increases gently and gradually as one move from the south to northward direction of the island. Northern island is older and more stable, and is located with the office blocks with many permanent structure along with multiple cyclone shelters. The southern island is good for rice produce and useful for winter crops for the islander. The entire

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island is blanketed with the plantation of exotic coconut palm trees (Fig. 4) along with other unique natural vegetation (Fig. 5). The islander popularly gave the name of "NarikelJinjira (Coconut Island)" correct in more than one sense. Every part of Coconut tree is precious. Some homestead growers entirely survive on the income that comes off the coconut trees. Easy Incomes comes mainly of selling coconut juice, but every part of the coconut tree is useful, and incomes is generated by selling various parts of coconut trees, the hard shell that contains juice. The leaf, fibre, trunk and root are sold in exchange of money. Local people use fibre to and leaf to build various part of the house and partition, very popular for fuel, trunks are used for boat making and other usages.



Fig. 4. St. Martin's Island is blanketed with Coconut Garden (source: <u>https://en.wikipedia.org/wiki/St.\_Martin%27s\_Island#/media/File:Coconut\_garden\_Saint\_Martins\_Island.jpg</u>).



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Fig. 5. Unique Natural Vegetation "Keya Tree" (Pandanus Odorifer) at St. Martin (Source: .https://upload.wikimedia.org/wikipedia/commons/d/d8/Keya\_Tree\_of\_Saint\_Martin\_Island.JPG

Dr.Humayun Ahmed, is an eminent educationist of Dhaka University, but later in life his talent in literature was exposed and became very famous in various parts of literature. His talent as a novelist, as a drama writer, song writer and a TV producer, made him nationally and internationally famous. He came to St. Martin's Island on a holiday, and fell in love with the beauty of the island, he decided to purchase a land and build a holiday home, since then he came to St. Martin's Island every year. While on holiday he created a novel by the name of "DaruchiniDwip" under the direction of film maker Toukir Ahmed. He directed the film and was released in August 2007, became a national award-winning film in many categories. The novelist comparedthe island with one of the most popular and expensive spices of the subcontinent called "Cinnamon" and honoured the island with a new name as "DaruchiniDwip (Cinnamon Island)" with love.

#### Tourist Heaven has landed On Earth – at St. Martin's Islands.

When someone is tired with the mechanical life, exhausted with the chaos and turmoil of the city life and in desperation looking for peace and tranquillity at that that critical moment St. Martin's Island is the right place to calm down and heel your soul. While amazing blur water will nourish your heart and mind. The sea as calm as silence, the breeze as light as gentle breath, the nature as fresh as unwrapped present and the people as loving and cordial as the closest relative you can ever have – yes,they are the attributes of paradise and it is our St. Martin's Island, which is the most beautiful and soothing place in the ocean. The beauty of St. Martin's Island is breathtaking, one must simply melt into it. The sea, the sand, the beaches, the coconut palm, the biodiversity, and the people everything there is ingredients of attractiveness of St. Martin. The blue sea is always dancing with thousands of colourful birds during the daylight along the shorelines. The waves were rushing toward the shore with gentle roar. The bushes, the rocky corals, the colourful turtles, the mammals, and variety of faunal assemblages adds another dimension of heavenliness of the Island.

And the beauty seems to be enhanced as the day turns into night and another layer of liveliness of peace and equanimity unfolds. As the rising sun appear in the middle of the ocean it turns everything into golden and sacred and so deserving veneration and salvage your soul spiritually. The early noon with the bright sun overhead makes the whole place gleam like jewel as the white sand reflects the sun rays and creates a sense of joy and rebel inside. As the day turn into afternoon and then to twilight the whole place becomes colourful with the sky being red and purple, the reflection of sand begins with twilight dances of colourthat bring immense pleasure for your heart. Slowly the night creeps in and the beauty of the night steep,the sound of the breaking waves and the cold breeze turns the entire island into a breathing place. No other sound to distract your mind, and you surrender yourself fully with the gifts of the Mother nature and

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keep dreaming. When you woke up in the morning you are fully energized for another adventure as a happy soul. Story goes on.....

#### Infrastructure, Population and Livelihood.

It is an elongated shaped island and it extend from north to south direction. The uppermost partis known as Uttar para, the middle part is called Dakshin para and bottom part is recognized as Cheradia (or CherraDwip). The Uttar Para is continued to Dakshin Para via Galachipa (neck like extension) while the Cheradia maintains Land connection during Low tide (CheraDwip) onlyand gets cut-off and becomes submerged during high tide, But the tiny little elevated part of Cheradia in remains dry all the time. The Uttar para is comparatively densely populated and most of the permanent urban structure including office building and NGO's are located. TheDakshin Para is dominated with fertile land and mostly rice paddy is cultivated. Other firm lands are alsoin located in Dakshin Para where most of the winter and summer vegetables are grown for the consumption of the local resident only.

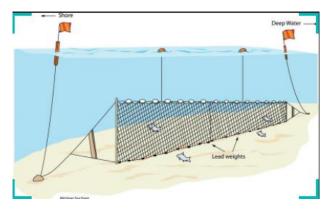
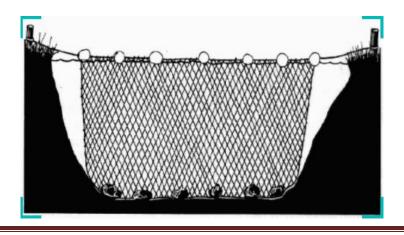


Fig. 6. Sample of a fixed gill net (source:

https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=http%3a%2f%2fmedia. mnn.com%2fassets%2fimages%2f2016%2f03%).



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Fig. 7. Rock-weighted gill net (source:

https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=http%3a%2f%2fwww.su rvivalprimer.com%2fSurvivalFishing%2fgillnet%)



Fig. 8. Huge Varieties of Fish caught at St. Martin's Island.(<u>http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental\_profile\_of\_st\_mar\_tins\_island.pdf</u>).

The first group of migrants came for settlement at S. Martin's Island during the 1980s. Since then over the year 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). With the Government support a few public department started working as a result more public housing, school, hospital, and cyclone centres were built. With the expansion of Tourism at St. Martin's island the demand for quality hotels, resorts and family holiday home went up. To meet the demand of acute shortages of quality accommodations private investor has built several hotels, motels and resorts but not enough to meet the growing needs of the visitors.

By 2008 the island 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. The presence of police and the naval base is providing positive contribution for the safety and security of the local people as well as the well fare of the visitors and is good deterrent against smugglers who are engaged in harmful activity including the degrading biodiversity. All the land is privately owned apart from 17.7 hectare of land purchased by the DoEF for reserved forest and other government activities.

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Several decades ago 90% of local people engaged in fishing. But that is now rapidly changing with the influx of thousands of tourists increasing number of people are engaged in service industry, tourism industry and other businessactivity. 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 drift, fixed (Fig. 6) and plain gill nets, and seine nets. Huge varieties as many as 234 species of Fish (Fig. 8) are caught (Saif, 2010) offshore as well as from the coral beds. Fishing in onshore waters over boulder reefs is done with rock-weighted gill nets (Fig. 7) which has an adverse impact on coral.

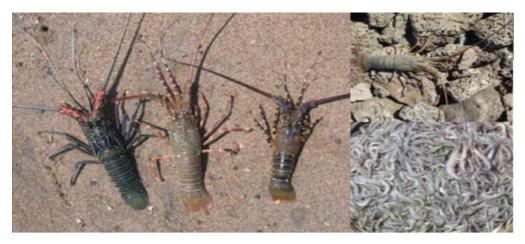


Fig. 9. Plenty of Lobsters and shrimps is a profitable catch at St. Martin Island (Photo: Abu Sayeed Mohammad Sharif;

Source:<u>http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental\_profile\_of\_st\_mar\_tins\_island.pdf</u>).



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#### Fig.10. Very poor, selling of shell for survival.

(source:<u>http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental\_profile\_of\_st\_ma\_rtins\_island.pdf</u>).

Shrimp fry collection is also undertaken on the island and the fry are sold to suppliers serving the Cox's Bazar Shrimp farms (Fig. 9). Of 332 family heads engaged in natural resource exploitation in 2000, almost 50% were shrimp fry collectors (Islam, 2001). Shrimp fry collection causes the large-scale loss of many other aquatic organism (Molony, et al, 2006) because they are caught in fine mesh nets and killed. Although it is banned but it is difficult to enforced as the activity is dispersed with inadequate manpower and many poor family depend on it for their livelihood (Fig. 10). In recent years due to government initiative alternative sources of income is created locally gave increasingly positive results.

Planted trees, particularly (exotic) coconut palm, have replaced much of original vegetation because it is coconut is very useful, a good source of cash earning and an alternative source of drink. Thus, the entire island is blanketed with coconut cultivation and in 2006, 15,000 coconut palms have been recorded on the island.

#### Accessibility and Transport.

Travelling to St. Martin's Island is by no means simple and it time consuming and expensive yet thousands of domestic travellers as well as hundreds of oversea travellers come to see the coral reef and the beauty of the island. The quickest mode of transport by air travel to Cox's Bazar and followed by a Coach trip to Teknaf port. Traditionally and conveniently all river transport (Fig. 11) to and from St. Martin's Islandoriginate from Teknaf's port. Currently (as of March, 2017) five shipping liners operate daily services and they are: 1. Shahid Sher Niabal, 2. LCT Kutubdia, 3. Eagles, 4. Keari Cruise & Dine, and 5. Keari-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. The ships and cruises are available from October – April and services are suspended on other time of the year due to rough weather.



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Fig. 11. St. Martin Island is only accessible by river transport from Teknaf Port. (source: vhttps://www.tripadvisor.com.au/ShowUserReviews-g667480-d1488937-r130378955-Saint\_Martin\_Island)



Fig. 12. The only transport available within St. Martin's Island. (source: <u>https://www.tripoto.com/trip/bangladesh-adventure-2-sailing-to-st-martin-island-56802f7332e3a</u>).

In very good weather and quiet sea environment those who can brave themselves for a venture on a highspeed boat with proper gear can be very warding but not advisable for safety reasons. At the St. Martin's Island, the only transport is rickshaw van pedal bike (Fig. 12) to move around the island on concreted road. It is very enjoyable and safe.

## Tourism.

The island has been a tourist destination for many years but with the withdrawal of restriction (between 1989 -2004 period) of the domestic visitorto St. Martin's Island, and the recent developments in tourism infrastructure, it has become one of the most popular tourism destination in the country due to its location, its rocky coral assemblages as it is built on the rocky coral by the rocky coral itself and the beauty of the mother nature, its pristine marine environment, serenity and tranquilities of the ocean. 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 and favoured by international tourist. The popularity of St.

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Martin's Island is unforgettable, unstoppableand its admiration and acceptance is increasing worldwide because the mother nature has exposed the attractiveness of this special landmark in an unusual fashion, making the island as a paradise in the ocean.

The primetime for tourist arrival include the Winter (December – January) but in fact tourism season continued most of the Dry season covering the Months(October - March)each year. The popularity of the island is increasing every year supported by the following data for:: 2002 -03, 2003 - 04, 2005 - 06 was 62,502, 103,488 and 156,736 respectively. These statistics was carried out for the month of December and January only. During the current study tour the author made a rough calculation of visitors travelled at St. Martin's island, it is by no means accurate, and it is estimated as 200,000 visitors during October 2017– March 2018 period. But the number of visitors in some days in the peak season must be much higher. During holiday season (October – April) each year about 1 million people visit St. Martin's Island and the number are increasing rapidly.

Since the devastation of hurricane in 1999, there is no electricity supply from national grid. All the hotels run on generator until 11 pm, after that it goes on solar power, which is popular throughout the island and rapidly expanding.

The booming tourism means happy visitor, make local business people happy, creating more jobs for the community, more money in every households. It is a win win-win for everyone. Tourism in its current format of "Unregulated Mass Tourism" is unsustainable and therefore tourism must be assimilated in conservation of biodiversity. Tourism must continue in the form of "Regulated Tourism, Enviro-tourism, Ecotourism, Water-Sports-Tourism and Guided Tourism. Time has come to introduce "Guided Tourism" throughout the year (except during cyclone, hurricane, typhoon, tornado, superstorm and similar phenomena – which are very short-lived event). It will reduce daily intake but spreading the number of tourists throughout the year round. With this technique overall number of annual visitorwill increase, it will be more environmentally friendly, kind to biodiversity and economic freedom for the islander. Urgent initiative must be taken by the highest level of government so that it integrates tourism management into biodiversity conservation in the island.

## Conservation of Biodiversity and Promote Tourism.

The geographic location and the monsoonal climate made our country vulnerable and prone to natural calamities. Tropical cyclone other natural disaster visits our country every year and wash away the economic progress. By deltaic origin, the country is criss-cross by thousands of rivers, The Ganges, the Padma and Brahmaputra are the major ones and most of the tributaries and distributaries are linked with this mighty river system. Often Bangladesh is known as country of rivers and offshore island. The country has huge potential if it can be developed for Tourism and infrastructure developed particularly to encouraged "River Tourism" and "Offshore Island Tourism". Infrastructure needed to develop "River Tourism" and "Offshore Island Tourism" will bring many benefit. For river tourism development will make the river bank protected from inundation from frequent flood, alluvium will be dredged out, carrying capacity will increase,

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more water in rivers, water sports will be booming, uninterrupted economic development will take place through river tourism.

"Offshore Island Tourism" (Fig. 3) development will take the vulnerability away, it will make offshore island more attractive, it will be resistant to cyclone & other form of natural disaster, the offshore tourism will bring economic activity within the island, each of the offshore island will become their own cash cow. The people will be wealthy, educated, smarter, local people will be more knowledgeable, tolerant and environment friendly through offshore tourism. Offshore islands will contribute millions of tourist dollars in nation development activities rather than taking aid from central government annually for their survival. Tourism will take the poverty away from Bangladesh forever. The country will slowly but surely will gain the status of the developed country sooner.

Bangladesh has many beautiful offshore islands but"St. Martin's Island" is the only coral island in the country. That makes St. Martins Island is very special and very precious and attracted by the entire nation. It is very popular tourist destination in the sub-continent, and recognised by the international community as one of the preferred destination around the world.

St. Martin's Island is a "Jewel in the Crown" and it is ornamented and embedded with rocky coralassemblages around itself makes it unique, precious and one of the most colourful biodiversity of the planet. It has got the potential to become the most modern oceanographic research institute of the world. With international cooperation and collaboration, it can become the world most advanced research institute on tourism development and biodiversity conservation. It will find all the answer how tourism can flourish without harming biodiversity. It will find all the answer of tourism development that will not only protect biodiversity rather the presence of tourism will flourish biodiversity and ecosystem. The institute will devise and invent tourism element that will protect and attract biodiversity. It will explore the answer for the queries: 1. why the St. Martin's Island has attracted coral assemblages?2. Why the other offshore island in the immediate vicinity fails to attract coral assemblages & why? 3. The institute will experimentally create: physical, biological and chemical environment where they will reproduce coral and nurture them in the laboratory until they become adult and finally release them in the natural environment. 4. The institute will develop long term, short term training program, intensive day program, for all walk of life targeting the offshore islanders who have very little education, train them and transforming them from destroyer of biodiversity to become the guardian angel of biodiversity.

Elevate St. Martin's Island as the capital of international Tourism & Biodiversity Research Institute (ITBRI). The centre will be devoted in carrying out in world class research with international expert for the development of global environment. The one of the principle purpose of the institute is to: 1. Take leading role to educate the everyone about the importance of tourism and how to become the best tourism friendly nation on earth; 2. Disseminate knowledge about the importance of biodiversity because the environment cannot survive with the vibrant biodiversity and we require healthy environment to supply survive; 3. Design experimentally,

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implement new technique, procedure and practice that can be best implemented for tourism development with vibrant biodiversity and are complimentary to each and actively becoming an important element of tourism; and; 4. The institute will be aggressively market the idea that future economic emancipation lies in tourism and only tourism will bring permanent prosperity and success for the nation. The global tourists (as well as the domestic traveller) are wealthy and rich, expect seamless travel experience, at world class tourist destination loaded with fun element at theme park and as a tourism friendly nation we are always ready to offer red carpet welcome to all global visitor.

#### **Turtle Nesting Place – An Exciting Tourist Attraction.**

There are three ECAs (Ecologically Critical Area) in Bangladesh that are important for marine turtle nesting: 1). Sonadia; 2). Cox's Bazar to Teknaf Peninsular Coast, and 3). St. martin's Island (Islam, M. Z., 2006). But St. Martin's Island is the best if all. They mate offshore and Amazingly the female turtle return to the same beach for nesting where they were born, even though it may take 30 years to return, and the appearance of the beach is greatly modified but the male turtle never returns.

Rock-Coral clusters, crystal clear water, variety of seagrasses, Water (temp, salinity and pH), nesting environment, fauna and flora assemblages and the beach environment made it ideal for turtle nesting.Sea turtle comes to nest on the beaches of St. Martin's Island from different spots from Sundarbans. Few decades ago sea turtle ware everywhere around the island and female turtle were very busy in laying eggs and looking after baby turtle hatching. But out of ignorance the local inhabitants became protector of sea turtle instead of protector. The poverty and hardship make them hunter and started selling turtle as well as turtle eggs rapidly reducing the number of turtle. The colourful turtle is an element of tourist attraction. Immediate steps must be taken by the appropriate authority to rejuvenate the growth the growth of sea turtle to protect ocean resources to save the mankind.

Olive Ridley Turtle (Lepidochelysolivacea) (Endangered).

Olive turtle (Fig. 13) is the smallest sea turtle with dark olive-green shell. It grows up to 100 lbs (50 kg) and grows up to 30 inches long. It is omnivores and still commonly nests around the St. Martin's



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Fig. 13. Olive Turtle.

(source:<u>https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=http%3a%2f%2f</u> www.seewinter.com%2fwp-content%2fuploads%2f2016%2).

Island. Its average life span in the wild about 50 years but maximum life span is unknown.

Hawksbill Turtle( Eretmochelys imbricate) (Critically Endangered).

The best-knownhawksbill turtle (Fig. 14) grows upto 3.3 feet (1 m) and weight up to 176 lbs (80 kg). It has a sharp curved beak. It is usually found in shallow water near coral where it feed on



Fig. 14. Hawksbill Turtle EretmochelysImbricata (critically endangered) St. Martin's Ilsnad (source:<u>https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=http%3a%2f%2f</u> 2.bp.blogspot.com%2f-b6qT1WwvlEg%2fUM1Vqg41pFI%).

Invertebrates especially sea sponges which are toxic to other animals. It is caught for its shell popularity called tortoise shell. It is last seen to St. Martin's in 1998, and is possibly found a better place for nesting, unless new initiative is taken for their repatriation. Normal life span is between 30 - 50 year.

## Loggerhead Turtle (CarettaCaretta) (Endangered).

Loggerhead turtle (Fig. 15) is very colourful and possessed a reddish-brown shell with a large head. It is widely distributed in tropical and temperate seas. It grows up to 800 lbs (364 kg) and it can be up to

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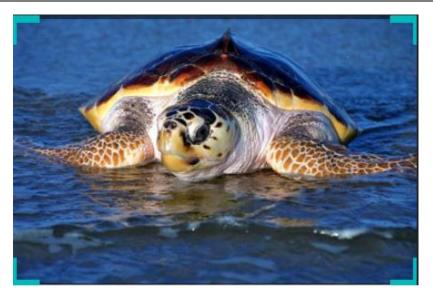


Fig. 15. Loggerhead Turtle Caretta Coretta (endangered) at St. Martion's Island (source:https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=http%3a%2f%2f www.animalspot.net%2fwp-content%2fuploads%2f2011%2).

3.5 feet (1.1 m) long. It feeds on molluscs, crustaceans, fish, jellyfish, crabs, and shrimps. It is intensively hunted for its meat and eggs. It is well known and popular for its shell which is the raw material for comb making. For those reasons it is internationally protected species.

Leatherback Turtle (Dermochelys Coriacea) (Critically endangered).

This is the largest of all sea turtle. Instead of a scaly shell its back is covered in thick leathery grey to black skin with long ridges running down its back. It is widely distributed in most of the world's ocean and it is the deepest diving sea turtle capable of diving at least 3,900 feet. It grows



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Fig. 16. Leatherback Turtle Dermochelyscoriacea

(source:https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=http%3a%2f%2f www.virginiaherpetologicalsociety.com%2freptiles%2fturtl).

over 6 feet (3 m) tall and weigh over 2,00 lbs (900 kg). Leatherback turtle (Fig. 16) specialises in eating jellyfish. It has declined mainly from harvesting of its eggs also caught and drowned in the nets of ocean going fishing vessel.

Green Turtle (CheloniaMydas) (Endangered).

The olive-brown to black colour shelland without a hook on the back is the diagnostic attribute of Green turtle (Fig. 17). It is widely distributed in tropical and temperate seas. It is reported to grow up to 700 lbs (315 kg) and 5 feet (1.5 m) long. It is herbivore feeding only on sea grasses and seaweeds. Green turtle is very popular for its "turtle soup", and is intensely hunted. They are also perished as



Fig. 17. Green Turtle Cheloniamydas

(source:<u>https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=http%3a%2f%2f</u> www.rsmas.miami.edu%2fblog%2fwp-content%2fuploads).

They are entangled into fishing net when they come to nesting at St. Martin's Island. Under normal circumstances they can live up to 100 years. These species still nest in smaller numbers on the island.

Water Sports at Marine Park – An exciting Tourist Attraction.

Most popular water sports among men and woman all over the world is Snorkelling and scuba diving. Marine Park at St. martin Island is most suitable to introduce in large scale water sports to attract large numbers of visitors from all over the country and overseas.

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Fig. 18. Snorkelling ecofriendly water sport

(source:https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=http%3a%2f%2f www.seastarcruises.com.au%2ffiles%2fphotos%2f0%2f141).



Fig. 19. Scuba Diving - Ideal for Marine Park Sport. (source: https://www.bing.com/images/search?view=detailV2&iss=VS&imgurl=http%3a%2f%2f3.bp.blo gspot.com%2f-UuJ03gD--FI%2fUAd78REK3PI%2fA).

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In fact, it can become a hub for Snorkelling (Fig. 18) and Scuba Diving (Fig. 19) for international tourist in the south-east Asia. While St. Martin's Island can earn millions of tourist dollars from overseas visitor's while keeping the biodiversity intact.



Fig. 20. Colourful Sea Grasses of St. Martin's Island. (source: http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental\_profile\_of\_st\_martins\_isl and.pdf ).

Snorkelling is ideal for floating underwater near the surface of the water, allowing people to observe underwater life over a long period with minimum physical effort. 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 of the lake, wearing tight fitting diving suit require to withstand extra water pressure in deep ocean and breathing through oxygen tank, it's called the self-contained underwater breathing apparatus. If you want to see the beauty of the ocean floor underlaying by soft life coral protected by colourful ocean grasses (Fig. 20), and nourished by sea turtle, scuba diving has no other alternative. It is fun, adventurous, exciting and more importantly scuba diving is very useful for acquiring knowledge of underwater world and bottom of the sea. It is particularly useful for coral reef research for its healthy growth, and expansion of coral cluster at the ocean bottom. A healthy coral association is the birth place, and food supplier for the entire fish resources. In fact, healthy coral growth is the best indicators for a healthy biodiversity.

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Every snorkelers and scuba divers must be accompanied with inexperienced guide as most of snorkelers and scuba divers are inexperienced and most of the time they will be excited with the beauty of the sea creatures, fauna and flora. Most of the time they can't resist touching them and harming them but looking at them while on motion will not be damaging but it will fill their heart with immense pleasure.

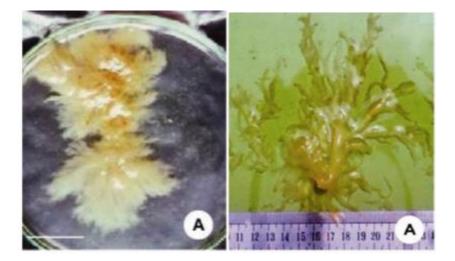


Fig. 21. New Class of Marine Algae (Rhodophyceae) discovered at St. Martin's Island. (source: https://www.cabdirect.org/cabdirect/abstract/20133073288).

It is a matter of great pride that very recently local scientist has discovered new class of marine algae (Fig. 21) at St. Martin's island. The new and the existing algae finding is a positive indication and this discovery will lead to their protection mechanism. Healthy Sea grasses protects sea turtle and sea turtle preserve coral and together they protect marine life.

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

The Canadian Coral Biologist (Tomascik, T., 1997) has carried out a detailed investigation on coral resources at St. Martins Island with the following revelation that the rocky sub-tidal habitat supports a diverse coral community up to a seaward margin to about 1000 m. During his investigation he has identified approx.66 coral species, of which 19 are coral fossils, 36 are living corals and

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Fig. 22. Rocky Beach at St. Martin's Island (Photo: QuaziHamidulHaque; Source: http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental\_profile\_of\_st\_martins\_isl and.pdf ).



Fig. 23. Coral Rocks act as natural protection from erosion. (source: <u>http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental\_profile\_of\_st\_martins\_isl\_and.pdf</u>).

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Fig. 24. Some of the diverse coral assemblages at St. Martin (source: http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental\_profile\_of\_st\_martins\_isl and.pdf ).

the rest are 11 species of soft coral. The beach is created by Rocky Corals (Fig. 22) and protected by rocky corals (Fig. 23) from erosion. Display of colourful diverse coral cluster(Fig. 24) is a joy for every visitor. The coral is the link that bounds all the biodiversity and ecosystems within the vicinity of coral assemblages like a farm house that that nourish, protect and feeds them and complimentary to each other. It is the lifeline of economic, environmental, and social wellbeing of the islander and pleasure of thousands of visitors, there is no other alternative but to keep the coral assemblages intact, with healthy and rich biodiversity, otherwise soon the island will disappear.

Birds Haven at Lagoons- an Important Tourist Attraction.

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There are three lagoons on the island. Traditionally they are considered as an important habitat of birds. The lagoons on the Uttar Para have now been reduced to muddy swamp. The lagoon on the Dakshin Para is now connected to the sea only during high tide through shallow creeks. The biggest lagoon covers an area of 40 ha is located between the southern end of the Dakshin Para and the Cheradia island. It relates to the sea through shallow water and is protected by wide spread boulders and stone corals.



Fig. 25. Pacific Golden Plovers at S. Martin's Islands (Photo: SamiulMahsanin; Source: <u>http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental\_profile\_of\_st\_martins\_isl\_and.pdf</u>).



Fig. 26. Brown-headed Gulls winter migratory bird have reduced significant due to agitation by tourist

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# (source:<u>http://samiasaif.weebly.com/uploads/1/6/7/9/16797564/environmental\_profile\_of\_st\_ma\_rtins\_island.pdf</u>).

Several decades ago thousands of residents, migratory, and seasonal bird transformed the lagoons as bird'sparadise, there number has taken the edge off. The number of pacific golden plovers (Fig. 25) and brown-headed gulls (Fig. 26) comes in smaller numbers, some other bird doesn't come to the island anymore because the lagoons have been modified, reduced and unkind to the birds. But St. Martin's Island is a preferred bird sanctuary for thousands of migratory birds as the island conveniently lies on the highway of bird's migration. If the lagoons can be excavated back to original form and shaper, then it will becomeagain the wonderful sanctuary for global birds and turn into a best tourist attraction for bird watching venue of the world.

#### Tourism Bonanza in Waiting at St. Martin's Island if we care!!!.

The lone coral island, its sandy beaches (Fig. 27), sunrise & sunset in the ocean and crystal clear blue ocean, and its tranquil environment provides heavenly pleasure for holiday maker. The nature gave all the element to become one of the most popular tourist destination of the world. In return the island has the potential to become the most successful source to earn millions of tourist dollars if it can be developed targeting to attract to attract global tourist. All is needed is to develop with the most modern tourism infrastructure particularly, air route (including airport/ and or heliport at Teknaf), rail link (to and from Teknaf), and modern road to get to St. Martin's Island in shortest possible time. The global visitors (including effluent local visitors) expect seamless travel experience to get to tourist destination, upon arrival the theme park should be loaded with endless fun, which are comparable with global standard. For example, the fun element never come to an end – when one enters Disneyland of California or Disneyworld of at Florida. That's why visitors keep coming repeatedly because endless fun young and old, men and women regardless of age welcomes you there. The next important item is the world class accommodation - a variety of five-star hotel can be established which itself can be loaded with plenty of fun element – like the Hotels / Resorts of Las Vegas. Millions of people goes to Las Vegas for fun with gambling and that is exclusively an in-door fun element within a hotel/resort. Quality three-star hotels should be scattered all around the island so that even during winter when the most tourist comes, can get an accommodation without much

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Fig. 27. Welcome to tourist heaven (source:<u>http://visitbangladesh.gov.bd/beach-holiday/st-martins-island/</u>).

difficulty. The main attraction during holiday is the demand of variety of foods at a cost-effective price, and easily obtainable and assessible. It is a rule of thumb during holiday people burns more energy, as they are always on the move, as a result they eat and drink lot more than usual. It is therefore very important that quality hygiene food is available at all time. At a good holiday destination any time is the right time for good food availability. The other important establishments are: Bank, Post Office, Transport and plenty of ATM booths available, and the last but not the least is the guaranty of safety and security at all time as there is on off time for a visitor. Thereby creating the foundation for earning millions of dollars per year from Global Tourist and it can only up.

#### **Conclusion.**

World most popular tourist destination are located by the water, in the island and prevail tropical climatic condition. Most attraction are on the water, by the water and within the water. On that count St. Martin's Island is ideal. Amazing rocky coral, colourful marine life and crystal clear blue water adds another dimension in the once in a life time experience at St. Martin's Island not to be missed. Bangladesh being the country of rivers and offshore islands great opportunity awaits the development of "River Tourism" and "Offshore Tourism". It will bring manifold fold benefits for the nation but particularly: 1. Infrastructure development for the offshore Island, will automatically minimise natural disaster and indirectly boosting national economy; 2. Development of "River Tourism" reduce river flooding, protection crops, livestock and precious

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life, thereby helping national economy in many different ways; and 3. Tourism development will educate the population in the vicinity of "River Tourism Development Precinct" and "Offshore Tourism Development Precinct". Tourism service industry will bring economic boom to the offshore island and transform the offshore as donors to the national economy rather than a traditional receiver. Tourism can and will bring long lasting progress for the country.

Bangladesh became a state member of IUCN long time ago and the government has declared the St. Martin's Island as "Ecologically Critical Area" in 1999. The declaration and implementation of "Marine Protected Area (MPA)" is also not been properly implemented as suggested by Tomascik (1997). Proper implementation of the rules and regulation, has not yet been exercised. Hence the gradual degradation of the island could not be halted. Immediate steps must be implemented, to halt, rejuvenate, and reverse the trend, so the government recruit, train, adequate manpower without further delay.

St. Martin's Island is the tourist paradise in the country. Further research work dedicated to flourish tourism and conservation of biodiversity and find ways how to assimilate them to save the only coral island of Bangladesh. The following management strategy may be useful for sustainable tourism in the island in general; establishment of ecotourism and managed tourism at the Marine Protected Area; recognising tourist related matter that affect island resources and find a long lasting sustainable solution that affect tourism; Assimilate tourism management into biodiversity conservation; setting standard and monitoring practice recommended by industry experts.

## **Recommendation.**

The St. Martin's Island is the most popular holiday destination in Bangladesh and Every year about a million visitor comes from various part of the country including many overseas visitor's despite some limitation, to observe beauty of the beach island, unbroken sunrise and sunset in the middle of the ocean, colourful marine life, Rocky coral clusters, and coconut palms are unforgettable. Tourism and ecosystems, are complementary to each. The declaration of Ecologically Critical Area (ECA) in 1999 and the subsequent ministerial decree to abide by the rules, are good enough to implement immediately. A collective inter-government approach at all level, including tour operator, hoteliers, the travel agents, and more importantly all resident of St. Martin's Island must be included in tourism management action plan and strategy for the conservation of biodiversity.

1.

Ignorance is the number one enemy for destruction of biodiversity followed by the poverty of the poor residents, therefore they must be identified first and put them on a mandatory paid training program. At the end of training program, they will be educated enough not only to refrain from their misdeed, but they will realise that what they are doing is suicidal and if they continue that

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the coral island will disappear, and they will be permanently homeless. Special training program must be catered to educate all islanderswith their fullest participation (young& old, boys & girls, man &women). So that after this mandatory special training program everyone will become a guardian angel to protect the biodiversity. After the training they will be responsible to preserve, protect and conserve the biodiversity, any violation will become a punishable offence.

#### 2.

Elevate St. Martin's Island as the capital of international Tourism & Biodiversity Research Institute (ITBRI) and bring along all the other offshore islands those are at the immediate vicinity of St. Martin's Islands. The centre will be devoted in carrying out in world class research with international cooperation. The sole purpose of the institute is to: 1. Take leading role to educate the entire nation about the importance of biodiversity; 2. Educate the entire nation about the importance of biodiversity; 3. Play crucial role and experimentally designed, advise and implement new technique, procedure and practice that can be best implemented for tourism development which will be commensurate with vibrant biodiversity; and 4. The institute will be aggressively market the idea that tourism is the future of the country, the wellbeing being of the nationand become most tourist friendly nation of earth.

#### 3.

The ITBRI will progressively grow bigger opening new branches so that more people can come under the training program and within few years' time every offshore island will end up having an institute. The education, the knowledge, and the training they will receive from the institute will bring many benefits to the offshore islander; firstly, they will protect biodiversity instead of culling them; secondly, they will be better prepared for cyclone and other forms of natural disaster; and finally, they will be properly trained tourism management expert. The institute will set up at various strategic point where they will provide special training program on river tourism. The institute will carry out in-depth research to select the best location to setup river tourism infrastructures and Offshore tourism infrastructure, theme-park, and amusement park. The tourism management expert will design conservation of special habitat and ecosystem, safe heaven and sanctuaries.

#### 4.

There will be a dedicated team of welcoming visitor and during the welcoming brief the visitor will be reminded again with their obligation during their stay at S. Martin's Island, and what is allowed and what is forbidden. As for example the tourists are restricted to go out and walk around the beaches after 8.00 pm until 2 am because these hoursis the nesting period of sea turtle.

5.

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Every visitor must be accountable for their action, will be scrutinised and punished accordingly for their action. Well-behaved tourist will be rewarded on the other hand a disorderly visitorwill be penalised. Any detrimental activity regarding the island fauna, flora and amphibians will be will be dealt with exemplary punishment and will be made public to raise awareness. Any kind of waste produced by the tourists must be disposed of at designated location only.

#### 6.

Implement and enforcement of regulation is the most problematic. Inadequate trained official is another big problem. Good number of trained official must be appointed and there will a provision to award the honest personnel and Corrupt official must be screened out and there will be option for severe punishment.

#### 7.

Two species of sea turtle have been making nest instead of five species at St. Martin's Island. Many decades ago all five turtles were very busy in making nesting all over the country and turtle nesting and turtle eggs were available everywhere, a scenario is disappearing very fast. The highest nesting frequency of Olive Ridley turtle (108) and Green turtle (10) were observed (Hossain, M. A. et al, 2013). A total of 251 turtle individuals were found. Nesting frequency for the entire country is dangerously low and urgent measured must be adapted to increase nesting dramatically, to void extinction.

## 8.

Positive action to save be biodiversity Is also taking place, in small scale is happening, for example Coastal Swamps Biodiversity Management Project and Marine Life Alliance have been breeding turtles in hatcheries by collecting turtle eggs from the beach for the last few years and works on creation of a congenial environment for turtle eggs laying. But large-scale initiative must be taken as a matter of priority by the government to make the progress visible.

## 9.

Bangladesh has already signed as a state member in 1972 and ratified. IUCN started its operation in the country in 1889 and established a country office in 1992. The country has full-filled the official procedure to save the environment and development of coastal region. It's time for action. Adequate number of coast guard should be appointed as a matter of urgencyto defend the sea and implement UN Law of the sea convention.

## 10.

Rigorous research must be carried out by the Institute, not only to protect the unique and dynamic nature of inter-tidal and sub-tidal rocky coral habitat, but also to find out the technique of how to generate the coral population, either in-situ environment, or reproduce, nurture and grow, under laboratory condition, and eventually release then to ocean environment, to expedite

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production of coral population, sea turtle population, to increase fish resources and enhance marine food reserves.

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