Corals in St. Martin's Island, Bangladesh face serious threats

By M. Akil

Coral reefs are the world's most spectacular and amazing underwater environments. These act as a sink for CO_2 which is the largest green house producing gas. The normal metabolic activities of corals lock up this CO_2 as calcium carbonate ($CaCO_3$) which is used in its growth. As long as they are alive and healthy, carbon dioxide is kept inside the corals skeleton and does not emit in the atmosphere. Other fauna live on the coral reefs also lock up CO_2 during their metabolic activities.

Moreover, coral reefs provide barrier against the worst devastates of typhoons, cyclones and storm surges. The reefs break the energy sources of the waves and prevent flooding, loss of property, and coastal erosion on the shore. Corals, dead (hard) or alive (soft), provide protection and shelter for different species of fish.

St. Martin is a small island located in the Bay of Bengal and the southernmost part of Bangladesh. It is a stock of marine, land and extraterrestrial resources. With the beach length of 14 kilometers it is the most attractive spot for tourist in Bangladesh. This island is the only place of blue sea and corals in Bangladesh. Coral communities in this area extend to about 200m offshore with the maximum coral cover of 7.4% and colony density of 1.3m to 2.0 m. These comprise 66 coral species, of which 36 are living corals, 11 are soft corals and 19 are fossil corals.

Corals under water in Saint Martin's Island are being damaged and destroyed by global warming, unplanned tourism and over exploitation. Global climate change creates a high risk to the population of coral reefs in this area. The major threats to coral reefs are most frequent cyclones, storm surges, and high levels of sedimentation and beach erosion.

Rise in sea temperature and ocean acidification, both linked to the global warming. Coral reefs are dependent on an alga species, which lives symbiotically in corals body and produces food by photosynthesis. When the temperature of sea rises above 28 ^{0}C, the coral ejects the algae colony and consequently it starves. With the removal of the algae, it loses color and appears white, which is known as coral bleaching. Coral reefs have already experienced major mortalities because of high-temperature events.

The temperature of water around the Bay of Bengal has notably increased in the last 40 years, raising acidification in the sea water and destroying approximately 22 species of corals available in this area. According to the Department of Environment (DoE), Bangladesh, 0.45 ^{0}C of temperature has increased in the last four decades around the Bay of Bengal.

Moreover, coral reefs are susceptible to human activities since the majority of coral reefs grow in shallow waters which are near shores where human activities are the utmost. Human impacts such as increased sediment load, population stress, shipping, careless tourism, pollution, habitat destruction, overfishing and development along shorelines have dramatic adverse impacts on the coral population, and it require a much more time for the coral reef to recover.

The two most important sources of marine water pollution are oil pollution from oil drilling, from everyday boat use and oil spills, and heavy metal pollution from ship dumping and port dredging activities. Both create long lasting disturbances to coral ecosystems with heavy metal pollution. For the reef ecosystems to return to its previous state naturally will take a few hundred years if human activities are reduced significantly or 50 to 100 years if it stopped immediately.

Reefs are very sensitive and susceptible to environmental conditions. To protect only Reef Island in Bangladesh from further destruction is not too late but a sound and effective reef management plan can protect it. Before considering a management strategy, a complete resource inventory of this island has to be taken and very detailed maps of the whole reef system are to depict. Nations around the world should perform more to restrict fishing, cut pollution and fight to control emissions of different greenhouse gases like CO_2, SO_2 to protect corals. Governments must reduce CO_2 emissions quickly and also formulate and implement policy to save coral reefs in St. Martin Island. A management plan can only be successful with the participation of people of island that survived indigenously, however unfortunately such plan is still a dream.

Reference

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