

'Environmental Concerns in the Indian Ocean; an Analysis on the effect in Maritime Environment based on Commitment of the Maldives National Defence Force (MNDF) for the Last Decade'



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1. Introduction

The Indian Ocean which covers nearly 30% of the world's oceans is home to about 30% of the global population. Some of the unique environmental and geophysical characteristics include having 30% of the world's coral reefs, 40,000 square kilometres of mangrove and nine of the largest marine ecosystems in the world.

In the centre of the Indian Ocean, the Maldives is an archipelago characterised by a double chain of 1192 islands naturally grouped into 26 atolls. These islands are geographically dispersed over 820 km in length and 120km in width enclosing 90,000 square kilometers of the ocean. The atolls constitute the 7th largest reef ecosystems in the world.

The marine environment along with coastal and marine resources, play a pivotal role in the subsistence and economic development of the Maldives. This development has been backed up by two marine environment dependent industries- fishing and tourism. These two industries account for the livelihood

of over 20% and 65% of the Maldivians respectively. The tourism industry being the back bone of the Maldives economy is reliant on the marine environment. Since its introduction in 1972, environment related sports of surfing, scuba diving, snorkelling, water sports and live-aboard activities have smoothly melded into the perfect atmosphere of sun, sand and seas where over 1.2 million tourists enjoy annually.

This paper will broadly outline the environmental concerns in the Indian Ocean, taking into account the perspective of the Maldives and the commitment taken by the MNDF Coast Guard and other national agencies to counter it at a national level. Some of the major concerns discussed in the paper include ocean resource exploitation, climate change, marine pollution and bio security.

2. Climate Change

The Indian Ocean region is highly vulnerable to the impact of climate change. Pertinent to the issue, island nations like the Maldives are currently witnessing the adverse effect of climate change in terms of weather extremes,

beach erosion, sea level rise and bleaching of coral reefs. According to the Intergovernmental Panel on Climate Change (IPCC), island states like the Maldives would be the first as well as the hardest hit by climate change, although the Maldives contribution to Green House Gases (GHGs) is negligible.

Along with the Maldives, the Indian Ocean Rim countries which host a significant population of living in areas highly vulnerable to various impacts of climate change have limited capacity to cope with the issue. Furthermore, loss of biodiversity is a serious concern associated with climate change and global warming. For instance, the Maldives is experiencing a series of coral bleaching which is gradually devastating some of the most spectacular reefs in the world.

In this regard, some of the prominent steps taken by the Maldives at a national level include;

2.1 Maldives Climate Change Policy Frameworks

The Maldives Climate Change Policy Framework promulgated in 2015 is a stepping strategy to curb the threats of climate change at a national level. Under the purview of the Ministry of Environment, this policy underlines five policy goals for the future;

- Regional and international climate **change advocacy role in leading international negotiations and awareness.**
- Foster **sustainable development** while ensuring security, economic sustainability and sovereignty.
- Strengthen **low adaptation actions and opportunities and build climate resilient infrastructure and communities.**
- Strengthen a **low emission development future and ensure energy**

security for the Maldives.

- Integrate **sustainable financing** into climate change adaptation opportunities.

2.2 Climate Smart Resilient Islands Initiative

The Climate Smart Resilient Islands (CSRI) initiative, that the Maldives leads on behalf of an array of island nations, will work towards greener transport and connectivity, greater food security through innovative and sustainable fishery and agricultural practices, investments in green tourism practices and climate proofing of all future infrastructure investments.

MNDF Coast Guard as a response agency to all levels of emergencies has learnt the challenges of reacting to Humanitarian Assistance and Disaster Relief (HADR) operations in the aftermath of the 2004 Tsunami. As a mitigation strategy, decentralised deployment of Coast Guard Squadrons at the four Area Commands of MNDF has helped in quick response to emergencies at a national level.

3. Ocean Resource Exploitation

The Indian Ocean provides immense economic contribution to the countries in terms of fishing, tourism and other ocean related industries, however exploitation and good governance of this vast resources has been a growing challenge. For instance, the high seas which cover nearly 50% of the world's ocean are the least protected areas of the Earth.

The Maldives for instance, is witnessing nefarious maritime activity with IUU fishing being one of the major concerns. According to a recent assessment commissioned by the Ministry of Fisheries Agriculture and Marine Resources

based on Automatic Identification System (AIS) data collected through satellite service providers found 432 illegal fishing activities over a span of two year period.

The Maldives at a national level has taken strong steps for sustainable fisheries management. These include entirely banning fishing by nets in her EEZ and allowing fishing 'one at a time' method. However these efforts are hampered by heavy fishing by nets on industrial scale all over the outer perimeter of the Maldives EEZ. Consequently the fish stocks are depleting at an alarming rate which has direct consequences to the food security of the Maldives and greater Indian Ocean Region.

Another remarkable initiative taken by the Maldives include declaring Marine Protected Areas (MPAs). Since 1995, over 61 MPAs including one Biosphere Reserve at Hanifaru Bay located in Baa Atoll of the Maldives has been declared protected.

The Coast Guard is committed to the protection of the natural resources of her vast EEZ. Practically this has been operationalised by continuous maritime patrol by the Maldives Coast Guard as well as joint maritime patrol by sea and air with friendly naval forces in the Maldivian waters. Over the past decade, MNDF Coast Guard through her increased operational and Maritime Domain Awareness (MDA) capabilities, has managed to apprehend numerous vessels engaged in illegal exploitation of resources in the vast EEZ of the Maldives.

4. Marine Pollution

Another environmental concern is the pollution which has detrimental impact on climate change on the ocean. As a result severe weather conditions turn into natural disasters threatening the very existence of humans. Furthermore pollutions pose threat to the survival of marine organisms and consequently, on the marine ecosystem, on which millions of livelihoods depend. The Maldives has experienced the vulnerability from pollution over the past decade.

For instance, the grounding of the

Vietnamese flagged cargo vessel MV NGOC Sun in 2016 forced the dumping of 5,000 tonnes of construction aggregate on to the reef of Foamulah Island of the Maldives in her salvage efforts. The reef, which is a renowned habitat of Tiger Sharks suffered extensive damages.

The Coast Guard has taken the lead role in formulating the National Maritime Contingency Plan on Oil and Hazardous Substance Spill (NMCP) in 2016 with other relevant stake holders. This plan will play a pivotal role in pollution response efforts to major maritime incidents at a national level. Pollution response equipment to Coast Guard will be fully equipped by 2022 expanding the scope of marine pollution response capacity nationally. Furthermore, collaborative response at a regional level has been enhanced through the multilateral exercise 'Dosti' among the Coast Guards of Maldives, Sri Lanka and India since 1991 enhancing interoperability in maritime safety response.

5. Loss of Bio Diversity/ Bio Security

Marine bio-security may be defined as the protection of marine environments from the dangers from man-made activities and non-indigenous species. These dangers have severe implications on biodiversity in the marine ecological systems in the Indian Ocean. Consequently these implications have direct impact on the economic industries such as fishing, agriculture and tourism.

The Maldives represents the 5th richest reef biodiversity and the 7th largest reef ecosystems in the world. According to the Valuing Biodiversity Report of the Maldives, biological diversity of Maldives contributes to 71% employment, 89% of Gross Domestic Product (GDP) and 98% of export. Comprehensive studies on bio-security in the Maldives are very limited, let alone the Indian Ocean.

Habitat loss due to dredging of harbours, reclamation of lagoons and other related commercial activities has become a growing concern to the Maldives. These commercial

activities have resulted in severe beach erosion among 60% of the islands. These challenges need to be addressed through a collaborative mechanism among policy makers, law enforcement agencies as well as government and private stakeholders at a national level.

The Maldives National Biodiversity Strategy Action Plan (NBSAP 2016-2025) is the leading strategy towards bio-security. The strategies under the NBSAP 2016-2025 are:

Strategy 1 – Strengthen governance, policies and strategies for biodiversity.

Strategy 2 – Enhancing communication and outreach through awareness programmes and capacity building

Strategy 3 – Work together globally for biodiversity conservation

Strategy 4 – Ensure sustainable use of biological resources

Strategy 5 – Address threats to conserve biodiversity

Strategy 6 – Strengthen Information Management and Resource Mobilisation

Another concern for the Indian Ocean and the Maldives is the lack of comprehensive studies on bio-security. For instance the issue of Invasive Alien Species (IAS) is becoming a significant threat to marine biodiversity where ballast water carried on board ships has been found as the major source of their proliferation. According to the International Maritime Organisation's (IMO) Ballast Water Management (BWM) Convention, identifying organisms and microbes in ballast water, as well as monitoring port marine life where ballast water may be released, are key for countries preparing to enforce the convention.

The Maldives hosted the BWM Convention regional workshop in June 2019 by the technical assistance of the IMO as an initiative to implement the convention in the Maldives.

6. Way Forward

Greater Collaboration at National, Regional and International Level

Environmental challenges inherent in one country are regionally connected to the rest of the twenty seven countries in the Indian Ocean Rim. The adverse consequences shall be borne regionally. At present such challenges are not adequately managed through regional policies, regulations, multilateral agreements, or in the least regional collaboration. The formulation of regional policies and strategies has to be supported with comprehensive research which brings in actors from all relevant disciplines, from the entire region.

Internationally, the Paris agreement on climate change was a breakthrough for what the nations could achieve collectively, there is still much more need to be done. On a global platform, the Maldives is up scaling the nationally built contributions in collaboration with the Small Island Developing States.

On 23rd September 2019, at the UN Secretary General's Summit on Climate Change, the Maldives presented a plan –Climate Smart Resilient Island (CSRI) which seeks to utilise natural solutions, promote innovations, and leverage technology to build resilience in our communities. As part of the plan, the Maldives is seeking to phase out single use plastics by the year 2023.

The United Nations Convention on Law of the Sea 1982 lays a guiding principle on marine environment management. In this regard the convention's part 12 establishes the guidelines for **Protecting and Preservation of the Marine Environment**. Prominent areas addressed in this part of the convention includes,

- Measures to prevent, reduce and control pollution of the marine environment
- Global and regional cooperation in protection and preservation of the marine environment

- Promote technical assistance
- Monitoring and environment assessment
- International rules and national legislation to prevent reduce and control pollution of the marine environment.
- Binding procedure to settle disputes between states

7. Conclusion

The Indian Ocean at its South East Asian Core remains one of the least integrated regions in the world lacking regional governance and unable to reap potential economic benefits of an effective multi-lateral order. Greater regional cooperation in managing ocean resources in the Indian Ocean Regions could lead to significant success.

It is a significant fact that the oceans cannot be protected without managing climate change and protecting the environment. The Maldives need international cooperation to achieve the goals at a national and a regional level for conserving the environment for generations.