



CHAPTER 14: Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development

Mauritius has an Exclusive Economic Zone (EEZ) extending over an area of about 2.3 million Km² of exploitable marine resources with a huge maritime zone to manage as well as a massive potential for development that can have a huge bearing on the economy. The Government considers the ocean economy as a pillar and new driver in its future development endeavors, and hence aims to prioritise the development of the sector.

The Blue Economy was recognised as a priority focus area at the **14th IORA Ministerial Meeting in Perth, Australia, on 9 October 2014**. Mauritius hosted the First IORA Ministerial Blue Economy Conference on September 2015 with the aim of conceptualising the sustainable development of Blue economy sectors including fisheries and aquaculture, renewable ocean energy, seaport and shipping and offshore hydrocarbon and seabed minerals within the IORA context.

As a Small Island Developing State (SIDS), Mauritius depends heavily on tourism and on its natural resources.

Specific measures undertaken by the Ministry since 2015 for the implementation of Goal 14:

1. Fisheries and Marine Resources Act of 2007 relates to the management, conservation and protection of fisheries and marine resources and protection of the marine ecosystem. The Act provides inter alia implementation of International Fisheries Conservation and Management Measures;
2. Master Plan for the Management and Zoning of lagoon for the Tourism Sector;
3. Setting up of the Coordination Committee on sea-based tourism projects;
4. New Policy framework for the Pleasure Craft Activities: In August 2016, the Ministry introduced a new policy framework called Pleasure Craft Management System (PCMS) for the management, licensing and operation of pleasure craft in a bid to reinforce safety and security of pleasure craft activities which form part of our core tourism product
5. Tourism Strategic Plan 2018-2021: A skill-intensive and technology-driven model of tourism development

Economic outlook of the Ocean Sector

Fisheries accounted for about 1.6 per cent of GDP with a turnover of Rs. 28.55 billion in 2017. The total fish production was around 23,845 tonnes comprising about 22,596 tonnes of fish from capture fisheries and about 1,249 tonnes from aquaculture in 2017. The total fisheries export accounted for around 19.3% of the national export.

The total active employment in the sector is estimated at 11,900. About 80 % of the labour force in the fish processing sector is women, thus, promoting the economic empowerment of women, which is in line with the Sustainable Development Goal 5.

The tourism sector is the fourth most important contributor to the economy, accounting for 7.1 percent of GDP. In 2017, it grew by 5.2 percent and it was forecast to grow by 4.7 percent in 2018. Some 1.3 million tourists visited Mauritius in 2017, which represented an increase of 5.2 percent from 2016.

Maritime Security

As a large ocean State, respectful of the rule of law and international law, Mauritius has taken the lead in the Western Indian Ocean region to combat piracy and other transnational organized crimes, and keep its territory and surrounding areas safe.

As the then Chair of the Indian Ocean Commission, Mauritius co-hosted with the Indian Ocean Commission a Ministerial conference on Maritime Security in April 2018, to coordinate actions to fight transnational organised crimes. As regard, an outcome document was adopted.

With a view to consolidating our engagement with the UN system, in particular, the United Nations Office on Drugs and Crime (UNODC) and the United Nations Department of Political Affairs (UNDPA), a Memorandum of Understanding (MoU) was signed to assist the Indian Ocean region to fight these security threats and challenges.

Sustainable Management of Resources

Mauritius has one of the world most strict Regulations with regard to the capturing of fisheries. A number of measures exists to maintain sustainability of fish stocks by dictating the level of exploitation of fish resources namely through the close season for the net fishery, restriction of destructive fishing methods, limitation on gear and mesh size, amongst others.

Moreover, in order to end overfishing and reduce fishing pressures in the lagoon, Fish Aggregating Devices (FADs) around Mauritius have been placed in order to relocate fishing effort to offshore fishing grounds. Training of fishers and provision of grant schemes and loan facilities are provided for purchase of boats for off-lagoon fishing. The Fisheries Training and Extension Centre (FiTEC), which is ISO 9001:2008 certified, dispenses various training courses to empower fishermen with a view to improve their livelihoods.

A Port State Control Unit based at the Seafood Hub monitors the activities related to fishing. A National Plan of Action (NPOA - IUU) to combat illegal, unreported and unregulated fishing has been developed in 2010. Additionally, there is in place a Fishery Monitoring Centre, which harbors a Vessel Monitoring System (VMS), has been regionalized amongst IOC Member States.

Protection and Conservation of Marine Resources

Many projects that promote the resilience of marine ecosystems such as mangrove propagation, long-term coral reef monitoring, coral farming, lagoon water quality monitoring, marine ranching, marine turtle conservation are being implemented by the Albion Fisheries Research Centre (AFRC).



Figure 1: Coral Farms in Mauritius Lagoons

A coral reef network was set up, which involves Government institutions, NGOs (Reef Conservation, Mauritius Marine Conservation Society, Eco-Sud, UoM, MOI, etc.) and the Indian Ocean Commission to join efforts through a roadmap to protect the ocean.

A collaborative project on marine turtle conservation with the Ministry, NGOs (Reef Conservation, Mauritius Marine Conservation Society, Eco-Sud) and Private sectors is ongoing since 2014.

Evaluating the anthropogenic accumulation of micro-plastics across Mauritius waters as a new issue is being looked into by the Mauritius Oceanography Institute. As a small island developing state, Mauritius is vulnerable to the effects of climate change. In order to understand the impact of ocean acidification in the EEZ of Mauritius, a study on the ocean acidity is currently being undertaken through the Global Ocean Acidification Network with an objective to set up an Oceanic Carbonate Chemistry Observatory in Mauritius where the changes in the trends and patterns of the oceanic carbonate chemistry system are monitored.

Leading Practices

- **Aquaculture as a means of sustainable fisheries**

Aquaculture development	
Aquaculture development	<p>The policy of the Government is to develop aquaculture in Mauritius to enhance fish production and to provide alternative modes of livelihood to fishermen and to release pressure on natural fishery resources.</p> <p>New regulations were put in place in 2015 to increase the existing number of prescribed sites at sea from eight to thirty-one. Extension services are being provided to private and small scale farmers on both freshwater and sea water aquaculture projects.</p> <p>To enhance wild stocks of fish in the lagoon, fish fingerlings are released annually under the Marine Ranching Program of the Ministry.</p>



- **Unique example of collaboration between two States.**

Unique Example of Collaboration between two States

Joint Management Area (JMA)

In 2011, the United Nations Commission on the Limits of the Continental Shelf conferred upon the Republic of Mauritius and the Republic of Seychelles the joint jurisdiction of an area of 396,000 km² over the seabed and sub-soil of the extended continental shelf in the Mascarene Plateau Region which is commonly referred to as the Joint Management Area (JMA). The JMA is a unique example of collaboration between two States.

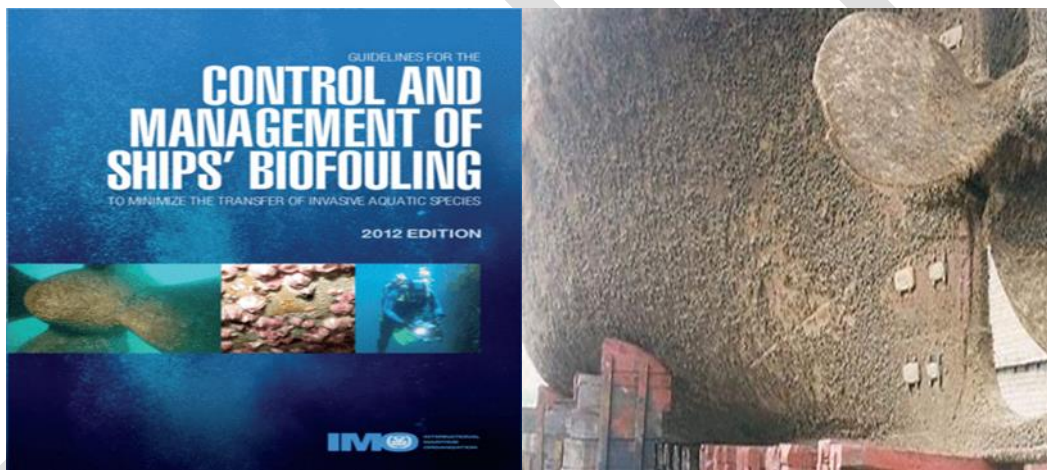
- **Marine Spatial Planning**

The Department for Continental Shelf, Maritime Zones Administration & Exploration is elaborating a Marine Spatial Plan for the EEZ of the Republic of Mauritius in view of the increasing demand for marine space in the EEZ for various purposes, particularly, fisheries

and aquaculture, tourism and leisure. Three Working Groups have been identified with the following themes: Planning for new economic activities; Conservation and MSP framework; and Coordination of MSP related projects.

- **Monitoring of pollution through shipping activities**

An average of 3500 ships call Port Louis harbour yearly from different parts of the world and discharge their ballast water in our territorial waters or in the port area. There is a growing concern about the adverse effects of ballast water. Mauritius is implementing the International Convention for the Control and Management of Ships Ballast Water & Sediments to prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens.



In addition, Mauritius as a Member State of the International Maritime Organization has adopted and is implementing the 2011 Guidelines for the Control and Management of Ships' Bio-fouling to minimize the Transfer of Invasive Aquatic Species

BRIGHT SPOTS

Marine Protected Areas

Mauritius has designated Marine Protected Areas (MPAs) which is a tool to protect the marine ecosystems and its resources, through a number of legislated restrictions and permits system. There are six Fishing Reserves and two Marine Parks. In the latter, there are designated zones within which fishing is prohibited.

In Rodrigues, there are 5 Fisheries Reserved Areas, 4 Marine Reserves and a multiple use Marine Protected Area called the South East Marine Protected Area. Currently, an estimated 15.913 ha of the marine environment are legally protected. 9.150 ha in Mauritius (2 Marine Parks, 6 Fishing reserves with an additional area of 1.960 ha within the buffer zone of the Le Morne Cultural World Heritage site) and 6.763 ha in Rodrigues (1 MPA and 4 marine reserves).

Mangrove propagation

The mangrove forests' coverage experienced a drastic decline before the 1990s triggering action of Mauritius to implement a Mangrove Restoration Project. A mangrove propagation programme was started in 1995 with the aims to afforest and protect the denuded areas as well as to sensitise the public on the importance of the mangrove forests in the marine ecosystem. To date, nearly 400 000 mangroves have been planted which cover almost 20 hectares of the coastal areas.

Air Mauritius, the National Flight Company, initiated the propagation of some 600 mangrove propagules at the Pointe D'Esny Ramsar site found in the South East of Mauritius as part of the project to restore the Ramsar site.

Community led project in coral reef restoration

Mauritius has implemented a three-year community based coral culture project (2017 – 2020) which aims at training and providing capacity building of the coastal communities in coral culture and reef rehabilitation techniques at four locations around the island. Approximately 110 coastal community members, comprising 85% male and 15% female, have registered under a “Coral Culture Training Programme”.

Registered participants are being trained in coral farm construction, set up, maintenance and management, coral pruning and transplantation amongst others.



In 2012, an island-wide close season for octopus fishing was introduced in Rodrigues and following its success, same has been carried out in Mauritius since 2015. Closure of octopus fishery from 15 August to 15 October which correspond to the spawning season of octopus, has led to increased catch and bigger sized octopus.

Zoning Programme

Since 2007, Mauritius has embarked on a zoning of lagoon programme which entails the demarcation of various zones to separate the different activities being undertaken in the lagoon, namely swimming zones, boat free zones, ski lanes, snorkelling zones, speed limit zones, dangerous bathing zones and mooring zones. The main objectives of the zoning of lagoon programme are to:

- Ensure that nautical activities are carried out in an organized and structured manner
- by ensuring an orderly conduct of activities
- Protect our biodiversity, fragile ecosystem and seascape.
- Reduce conflicts among sea users and enhance safety and security at sea for both tourists and local population

To date, some 17 swimming zones, 7 mooring zones, 2 boat free zones, 6 speed limit zones, 4 ski lanes, 3 snorkelling zones, 2 dangerous bathing zones and navigational aids at 26 passes have been implemented around the island. These zones have been demarcated with the help of buoys as per IALA standards for specific purposes.

FUTURE CHALLENGES AND OPPORTUNITIES

Challenges	Opportunities
<ul style="list-style-type: none"> • Lacks the necessary financial capacity, skills, and technology to explore, study and utilise the immense potential offered by the marine environment 	<ul style="list-style-type: none"> • Many projects are facing difficulty to be implemented, for example, Implementation of project for monitoring Ocean Acidification is constrained through the unavailability of adequate equipment and trained staff. One of the biggest challenge is the pollution of the sea by microplastics
<ul style="list-style-type: none"> • Difficulties to monitor coral reefs, seagrasses, marine turtles, marine debris on remote outer islands such as St Brandon 	<ul style="list-style-type: none"> • There is a need to have a permanent station set up there to have regular monitoring
<ul style="list-style-type: none"> • Lack of observers on foreign vessels, lack of resources to survey the vast EEZ and lack of trained enforcement personnel 	<ul style="list-style-type: none"> • More Monitoring is required to counter check the balance
<ul style="list-style-type: none"> • Overfishing, illegal and destructive fishing practices and the presence of harmful fishing subsidies. Small states, with limited international voice and influence, are unable to strengthen the global ocean governance architecture on their own. 	<ul style="list-style-type: none"> • Ability to derive economic gains from the blue economy is dependent on the actions of the international community to address these challenges

<ul style="list-style-type: none"> • Declining ocean health, including rapid and sustained increases in marine pollution, ocean warming, declining oxygen levels and rising levels of ocean acidification, all of which have contributed to the degradation of ocean and coastal ecosystems. 	<ul style="list-style-type: none"> • Vigorous Monitoring and Concrete actions are international level
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Opportunities	Way forward
<ul style="list-style-type: none"> • Investment in Offshore Aquaculture 	<ul style="list-style-type: none"> • The Government of Mauritius is looking into opportunities to develop offshore aquaculture activities owing to a scarcity of in lagoon prescribed aquaculture sites for development of in lagoon aquaculture;
<ul style="list-style-type: none"> • Development of a national fishing fleet 	<ul style="list-style-type: none"> • The Government aims at developing a Mauritius fishing fleet to fully exploit the commercial fish resources in the Mauritius EEZ and ensure that the activity remains sustainable through proper control and monitoring.
<ul style="list-style-type: none"> • Marine Biotechnology 	<ul style="list-style-type: none"> • Literature and studies performed in Mauritius suggest high that certain marine species represent commendable potential as anti-inflammatories and anti-cancer properties. Mauritius is looking for strategic partnership to take the research further in terms of isolation of molecules and clinical trials.
<ul style="list-style-type: none"> • Port Development 	<ul style="list-style-type: none"> • Mauritius has completed its Port master plan. With a 30 000 vessel traffic passing close to Mauritius, the island ideals itself as a prime maritime hub by developing a modern and efficient port. Investment

	<p>opportunities exist in the building of a new island terminal for container unloading and transhipment.</p>
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