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STRATEGIC PLAN 2016 – 2020



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FOREWORD



On behalf of the Board of the Mauritius Oceanography Institute (MOI), I have the pleasure to present the Institute's Strategic Plan for the period 2016 to 2020. Prepared in the context of the newly defined emphasis on the Ocean Economy, this five-year plan will enable the MOI, as the technical arm for Oceanography of the Ministry of the Ocean Economy, Marine resources, Fisheries, Shipping and Outer Islands, to engage in fundamental and applied research to develop a sustainable Ocean Economy. It will also re-enforce the MOI's vision to becoming a Centre of Excellence for the South Western region of the Indian Ocean

Over the past years, the MOI has been focusing its research activities primarily in the near shore waters of Mauritius and has undertaken projects such as shallow water bathymetry, coastal erosion studies, ecological monitoring of the lagoons, DNA-based biodiversity assessment, coral farming and reef rehabilitation, pearl oyster pilot study, investigation of submarine ground water discharge, bio-prospecting of marine sponges and collection of physical oceanographic data.

The MOI has also been involved in some major research expeditions in the Mauritius Exclusive Economic Zone , for example, ORV SagarKanya (India) (2002), INS Sarvekshak (India) (2007, 2013), R/V Hakuho-Maru (Japan) (2007, 2009, 2010, 2013), R/V Marion Dufresne & R/V Meteor (France/Germany) (2012,2013), Tara Ocean (France) (2010) and R/V DR Fridtjof Nansen (SWIOFP & ASCLME/IIOE-2,2010, 2015).

The relocation of the MOI, in December 2015, to its new facility at Albion has been a milestone in the history of the Institute. This new complex with its new laboratory facilities will facilitate the implementation of projects in various fields of Oceanography such as biotechnology, marine chemistry, aquaculture, geophysics, microbiology, marine genetics and genomics, satellite and physical oceanography, marine ecology and deep sea research. Presently, the MOI is engaging in capacity building of its workforce and upgrading its research infrastructure. Moreover, it is strengthening its existing partnerships as well as developing new ones, with well known Universities, Regional and International Oceanographic Institutions in order to implement strong scientific programmes in the vast maritime zone of the Republic of Mauritius.

International collaboration with similar Oceanographic Institutions for joint research and sharing of Data has become a must, as activities and changes in one ocean has a domino effect on other oceans throughout the world. MOI's main objective is to pursue and support the national effort for the sustainable exploitation of marine resources and to ensure that the country prospers as a successful ocean state.

The main strategic objectives of the MOI for the next five years will involve characterization of the coastal and oceanic waters of the Republic of Mauritius, the evaluation of sustainable resource exploitation alternatives and of the environmental implications of development and global economic and environmental trends, and natural disasters. Accordingly, the MOI has developed an operational plan to meet these strategic objectives as well as international commitments such as the 2030 Agenda for sustainable development and 2015 Paris COP 21.

Supported by a dynamic, multi-disciplinary research team, the MOI is well equipped with the tools required to face the new challenges facing the new ocean state. I am sure that the MOI will continue with the good work and endeavour to foster the Government's new quest in making the Ocean, a pillar of its economy.



Raj Hemansing Prayag PDSM
Chairman of the MOI Board.

INTRODUCTION

Applied Research and Development for the Ocean Economy

Since its formation in January 2000, the Mauritius Oceanography Institute (MOI) has been conducting oceanographic research to meet the needs of a country with a unique and diverse coastal region and an Exclusive Economic Zone of more than 2 million square kilometres. At the end of 2015, MOI moved into its new research facilities in Albion. While there is still a strong need to fully equip and staff this new facility, the Strategic Plan for 2016-2020 is focused on providing the oceanographic information necessary for developing the ocean economy as part of the Mauritius Vision 2030, the plan to address unemployment, alleviate poverty, open the country to the world, and achieve sustainability and innovation. The Mauritius Oceanography Institute (MOI) is positioned to provide the marine science needed to achieve these national aims.

The Mauritius Oceanography Institute Act (1999) defines the goals of this strategic planning process as follows:

Strategic and Operational plans

- (1) *The Board shall declare a period of a specific duration to be a planning period.*
- (2) *Before the commencement of each planning period, the Board shall formulate a strategic plan in respect of the period referred to in subsection (1).*
- (3) *The strategic plan shall set out-*
 - (a) *the broad objectives of the Institute in performing its functions under this Act; and*
 - (b) *a broad outline of the policies and strategies to be pursued by the Institute to achieve those objectives.*
- (4) *The Board shall submit the strategic plan to the Minister as soon as practicable within a reasonable time before its coming into effect.*
- (5) *The Board shall, before the commencement of each financial year that is included in the planning period, formulate an annual operational plan for the execution of the current strategic plan.*



VISION

To become the centre of excellence in oceanography in the Indian Ocean region.

MISSION

To undertake oceanographic and coastal research and development for the sustainable management of resources in support of the ocean economy of the Republic of Mauritius

CORE VALUES

- Professionalism
 - Integrity
 - Transparency
 - Collaboration



OBJECTS OF THE INSTITUTE

The Mauritius Oceanography Institute Act (1999) defines the objects and functions of the Institute as follows:

- o To foster interest in research and development in relation to oceanography.
- o To advise Government on the formulation and implementation of policies and programmes in respect of oceanography and related subjects.
- o To coordinate, collaborate and cooperate with other institutions, agencies and persons on national, regional and global issues within its fields of interest, and to assist any organisation, body or person in creating sustainable research and development programmes in those areas of interest and activity related to oceanography.
- o To demonstrate and communicate to the scientific community and the public at large the results of research and the importance of oceanography in the conservation, maintenance, management, utilisation and development of resources based on marine and coastal ecosystems.
- o To manage and optimise the use of funds and other resources for the purposes of this Act.



FUNCTIONS OF THE INSTITUTE

The Institute shall have such functions as, in its opinion, are necessary to further most effectively the objectives of the Institute, and in particular:

- o To initiate, encourage, launch, facilitate, support, undertake, participate in, rationalise and coordinate research and development in relation to oceanography having regard to the national, regional and international interests of Mauritius, its needs and priorities.
- o To arrange for carrying out such research and development.
- o To provide any other institution, body or person with facilities for carrying out such research and development.
- o To maximise opportunities and arrangements for such research and development on a collaborative basis.
- o To encourage and facilitate the application and use of the results of such research and development.
- o To prepare, fund, implement and periodically update and monitor programmes relating to the sustainable development of marine resources.
- o To collect, coordinate, store and disseminate information relating to oceanography and to publish reports and other material relating to oceanography.
- o To identify training needs in the field of oceanography.
- o To make available to other institutions, bodies or persons, on such items and conditions as it thinks fit such as knowledge, expertise, equipment or facilities of the Institute.
- o To do anything incidental or conducive to the performance of any of its functions under this section.



STRATEGIC APPROACHES

For the past fifteen years, the MOI has contributed to many national, regional and international projects and assisted the Government in policy matters with regards to the ocean. In its pursuit to promote the sustainable development of the Ocean economy, the MOI's activities can be grouped into three strategic approaches:

- 1 Characterise the Republic of Mauritius's oceanic and coastal environments.
- 2 Evaluate sustainable resource exploitation alternatives.
- 3 Evaluate environmental implications of ocean economy projects, global trends, and natural disasters.

Strategic approach 1.

Fully characterise the geophysical, chemical, and biological attributes of Mauritius's oceanic and coastal environments.

Characterise the potential of the maritime and Extended Continental zones of Mauritius.

- Provide such support as may be requested by the Prime Minister's Office, Continental Shelf, Maritime Zones Administration and Exploration in the development and management of non-living resources in the EEZ, the Continental Shelf of the Republic of Mauritius as well as the management of living and non-living resources in the Mauritius/Seychelles Extended Continental Shelf in the Mascarene Plateau Region.
- Conduct and provide support for multidisciplinary surveys of the maritime zones of the Republic of Mauritius.

Characterise Mauritius's coastal and oceanic environments using a standard suite of oceanic and climatological indicators implemented with state-of-the-art remote-sensing technologies and operational oceanographic services.

- Develop operational oceanographic services using a standard suite of oceanographic measurements, including resource biomass, primary productivity, salinity, temperature, and water quality.
- Strengthen regional oceanographic observations (e.g., MESA, Monitoring of Environment and Security in Africa program).
- Maintain updated maps of the waters around the Republic of Mauritius.
- Conduct surveys of outer islands (e.g., Rodrigues baseline survey).

Strategic approach 2:

Evaluate the feasibility of alternatives for the sustainable exploitation of the Republic of Mauritius's resources.

Aquaculture related research and services

- Characterise potential aquaculture sites.
- Conduct feasibility studies and research related to aquaculture activities (e.g., oysters, pearl oysters, mussels, sea urchins, sea cucumbers, ornamental fishes).
- Enhanced genetic diversity of aquacultured species.

Marine biotechnology research and applications

- Prospect the diverse marine community (e.g., sponges) for active compounds to treat cancer, diabetes, and cognitive diseases.
- Conduct feasibility studies for other pharmaceutical or cosmetic products (Spirulina).



Strategic approach 3:

Evaluate the implications to the coastal environment of other approaches for the ocean economy, global economic and environmental trends, and natural disasters.

Implications of other local ocean economy ventures

Research and monitoring of:

- Port development and shipping.
- Land-sea interactions (e.g., groundwater nutrient discharges).
- Marine renewable energies.

Climate change impacts and adaptation strategies

Research and monitoring for:

- Adaptation to global climate change on marine resources.
- Adaptation to ocean acidification on calcifying organisms.
- Mitigation of impacts of sea level rise using past data and predictive models.
- Mitigation and adaptation measures to strengthen resilience (e.g., reef rehabilitation).
- Prediction of thermal stresses and coral-bleaching.
- Prediction of the effects of air-sea interactions on local climate.

Disaster reduction strategies: ocean hazards management

Research and monitoring of:

- Hazard and risk mapping for safety and economic security.
- Ocean currents information for search and rescue operations at sea.



POLICIES

Accomplishing these strategic approaches require a set of four institutional policies to become fully successful:

- 1 Capacity Building
- 2 Collaborations
- 3 Consulting Services
- 4 Public Outreach and Communications

Capacity Building

MOI has just recently moved to a newly constructed facility in Albion. The facility has not yet been fully stocked with equipment. In addition to physical capacity, the strategic approaches described above will also require addition staff development. Oceanographic institutions worldwide provide detailed training and development programs to retain their talented staff.

Collaborations

There is not much difference between the needs of the Republic of Mauritius to develop its ocean economy and that of its Indian Ocean neighbours. Yet, these requirements must be met with a population and resources that are 100-1000 times less than other neighbours. As a result, success will depend upon an extensive network of internal and external collaborations. The work of MOI must be fully coordinated with that of other Mauritian agencies and not duplicated. Regional (e.g., MESA, IOC, IAEA, WIOMSA) collaborations can provide funding and consistent methodology to allow MOI data and information integrated into regional oceanographic and climatological models. Collaboration with international oceanographic institutions and observatories can provide new research approaches and analyses that are much more cost-efficient. Local and international business partners and investors can provide funding and insights into which ocean economy ventures have a clear market.



Consultancy Services

To supplement the budget provided directly by the government, MOI will further its ability to accomplish its strategic approaches to the ocean economy by providing consultancy services to other partners. These services might include:

- Services related to ocean and coastal sustainable development.
- Bathymetric information.
- Monitoring of oceanographic parameters.
- Ocean state: Remote sensing and model output.
- Ocean GIS mapping.
- Mooring operations: Instrument setup.
- DNA based identification of marine organisms.

Public Outreach and Communications

A critical element in accomplishing these tasks is the demonstration and communication to the scientific community and the public at large of the results of research and the importance of oceanography in the conservation, maintenance, management, utilisation and development of resources based on marine and coastal ecosystems. These communication activities will include:

- Development and implementation of a communication strategy.
- Communication of research findings, papers and publications of scientific papers.
- Participation in workshops, seminars and training courses in connection with oceanography at the national, regional and international levels.
- Publication of an electronic quarterly newsletter.
- Organisation and participation in the National Ocean Science Forum (held every two years).
- Celebration of the World Oceans Day.





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