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January 2009

Dr. The Hon Navinchandra RAMGOOLAM, GCSK
Prime Minister
Minister of Defence & Home Affairs
Republic of Mauritius

In accordance with the provision of the Mauritius Oceanography Institute Act of 1999, I am hereby submitting the Annual Report of activities and accounts of the Mauritius Oceanography Institute for the Financial Year which ended on 30 June 2007.

Yours sincerely,

Prof. I. Fagoonee
Chairman
The Mauritius Oceanography Institute (MOI) was established under the Mauritius Oceanography Institute Act (Act No. 24 of 1999).

The objects of the Mauritius Oceanography Institute, as spelt out in the Act, are:

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

Our Vision

To contribute towards the advancement of oceanography at the national, regional and international level for the welfare of the people of the Republic of Mauritius.

Our Mission

To develop and strengthen oceanographic research, using an integrated scientific approach, to enhance understanding of ocean and coastal processes, for rational development of marine resources, within the maritime zone of the Republic of Mauritius.
The Mauritius Oceanography Institute (MOI) is managed by a Board, consisting of a Chairperson appointed by the Prime Minister and senior representatives of different ministries and institutions. Sections 8 to 10 of the MOI Act of 1999 lay down the overall responsibility of the Board.

The composition of the Board for the year 2006-2007 was as follows:

a) Chairman of the MOI Board:
   Professor I. Fagoonee

b) The Secretary for Home Affairs, Prime Minister’s Office, or his representative:
   Mr. S. C. Seebaluck

c) A representative of the Ministry to which the responsibility for the subject of foreign affairs is assigned:
   Mr. K. Jingree, First Secretary

d) A representative of the Ministry to which the responsibility for the subject of Finance and economic development is assigned:
   Mr. R. S. Veeramundar, Senior Economist (up to November 2006)
   Mr. D. Bundhoo, Principal Economist (as from December 2006)

e) A representative of the Ministry to which the responsibility for the subject of environment is assigned:
   Mr. S. Seebaluck, Permanent Secretary

f) A representative of the Ministry to which the responsibility for the subject of fisheries is assigned:
   Mr. M. Munbodh, Chief Fisheries Officer

g) A representative of the Ministry to which the responsibility for the subject of lands is assigned:
   Mr. M. Roojee, Chief Surveyor (as from August 2006)

h) A representative of the Ministry to which the responsibility for the subject of Rodrigues is assigned:
   Mr. P. Bonomaully, Permanent Secretary

i) The Executive Director of the Mauritius Research Council or his representative:
   Dr. A. Suddhoo, Executive Director
j) The Vice Chancellor of the University of Mauritius or his representative:
   Dr. R. T. Ramessur, Associate Professor

k) The Director of the Mauritius Meteorological Services or his representative:
   Mr. S. N. Sok Appadu, Director (up to May 2007)
   Mr. Y. Boodhoo (as from June 2007)

l) The Director-General of the Mauritius Ports Authority or his representative:
   Captain P. Ponambalam, Port Master

m) The General Manager of the Outer Islands Development Corporation or his representative:
   Mr. P. Davay, General Manager

n) Members having wide experience in oceanography or international law to be appointed by the Minister:
   Mrs. A. Narain, Assistant Parliamentary Counsel
   Dr. A. Chan Chim Yuk, Associate Professor, University of Mauritius
   Mr. S. Ho Man Cheong, Adviser, Prime Minister’s Office
   Mr. S. Ragoonaden
### Staff of the Institute

**Dr. M. Bhikajee**, B.Sc. [Zoology], M.Sc. [Fisheries Management], Ph.D. [Marine Biology]  
**Director**

### Scientific Staff

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Details</th>
</tr>
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</table>
| **Mr. M. R. Badal**, Grad. Stat., M.Sc.  
  [Applied Maths and Modelling], M.Sc. [Oceanography] | Project Officer | (On secondment to Intergovernmental Coordination Group for Tsunami Warning & Mitigation System for The Indian Ocean Office in Perth, Australia as from 14 May 2007) |
| **Dr. D. E. P. Marie**, B.Sc. (Hons.), Ph.D. [Chemistry] | Project Officer | — |
| **Mr. E. Martial**, B.Tech. (Hons.) [Computer Science & Engineering], M.Sc. [E-business] | Project Officer | — |
| **Dr. K. R. Moothien Pillay**, B.Sc., M.Sc. [Marine Ecology and Fisheries Biology], Ph.D. [Fisheries Science] | Project Officer | — |
| **Mr. S. Persand**, B.Sc. (Hons.) [Physics], M.Sc. [Physical Oceanography] | Project Officer | — |
| **Dr. A. D. Poonth**, B.Sc. (Hons.) [Biology], Ph.D. [Marine Biology], M.Sc. [Oceanography] | Project Officer | — |
| **Mr. J. I. Mosaheb**, B.Sc. [Marine Biology], B.Sc. [Biochemistry with Molecular Biology] | Research Scientist | — |
| **Mr. B. A. Motah**, B.Sc. (Hons.) [Physics with Environmental Science] | Associate Research Scientist | — |
| **Mr. P. Mussai**, B.Sc. [Zoology], M.Sc. [Marine Biology & Oceanography] | Associate Research Scientist | — |
  Associate Research Scientist (as from May 2007) | — |
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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</table>
| Mr. M. B. Muddhoo, B.Sc. (Hons.) [Chemistry] | Research Assistant in Chemical Oceanography (up to May 2007)  
Associate Research Scientist as from May 2007 |
| Mr. V. Ramchandur, B.Sc. (Hons.) [Physics]     | Research Assistant in Physical Oceanography (up to May 2007)  
Associate Research Scientist as from May 2007 |
| Mr. C. Samyan                | Technical Assistant/ Senior Technical Assistant                             |
| Ms. A. Seengh                | Assistant Administrative Officer  
(Resigned on 24 April 2007) |
| Ms. L. Seeballuck            | Assistant Administrative Officer  
(as from 1 September 2006) |
| Mrs. N. Tegally              | Confidential Secretary                                                      |
| Mrs. C. Persand              | Public Relations Officer                                                   |
| Mrs. S. Ramjanally – Jaunbocus | Confidential Secretary                                                      |
| Ms. R. Boyjoonauth           | Clerical Officer/Higher Clerical Officer                                    |
| Ms. S. Jogarah               | Receptionist/ Word Processing Operator                                     |
| Mr. I. Kalloo                | Senior Finance Officer  
(Part time from PMO)                                                        |
| Mrs. R. Sobha, ACCA          | Accounts Clerk                                                             |
| Ms. M. Babajee               | Clerical Officer /Higher Clerical Officer                                  |
### Support Staff

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Mr. D. Munsah</td>
<td>Driver/Office Attendant</td>
</tr>
<tr>
<td>Mr. V. Coopen</td>
<td>Driver/Office Attendant</td>
</tr>
<tr>
<td>Mrs. M. Rajiah</td>
<td>Cleaner (On contract as from 1 August 2006)</td>
</tr>
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</table>

### Trainees under the Skills Development Programme

**Batch of December 2005 – November 2006**

<table>
<thead>
<tr>
<th>Name</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Mrs. S. Hosany</td>
<td>(up to November 2006)</td>
</tr>
<tr>
<td>Ms. N. Chutoo</td>
<td>(up to July 2006)</td>
</tr>
<tr>
<td>Ms. P. Gujadhur</td>
<td>(up to December 2006)</td>
</tr>
<tr>
<td>Ms. V. Seebhurrun</td>
<td>(up to January 2007)</td>
</tr>
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</table>

### Trainees under the Student Work Experience Program (SWEP) of the University of Mauritius

<table>
<thead>
<tr>
<th>Name</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Ms S. Betchoo</td>
<td>(up to 28 July 2006)</td>
</tr>
<tr>
<td>Ms. B. Ramsurrun</td>
<td>(up to 28 July 2006)</td>
</tr>
<tr>
<td>Ms. A. B. Raghoonundun</td>
<td>(up to 28 July 2006)</td>
</tr>
<tr>
<td>Mr. N. A. Seebrun</td>
<td>(up to 28 July 2006)</td>
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### Trainees under the Government Empowerment Programme

<table>
<thead>
<tr>
<th>Name</th>
<th>Duration</th>
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<tbody>
<tr>
<td>Ms. A. Deerpaul</td>
<td>(as from May 2007)</td>
</tr>
<tr>
<td>Mr. S. Bacha Gian</td>
<td>(as from May 2007)</td>
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Continental Shelf Project

An important task of the Mauritius Oceanography Institute (MOI) is to put forward a submission to the Commission on the Limits of the Continental Shelf (CLCS) for an extension of the maritime jurisdiction of the Republic of Mauritius as per the provisions of the United Nations Convention on the Law of the Sea (UNCLOS).

Mauritius has ratified the UNCLOS and the Agreement relating to the implementation of Part XI of the Convention on 4 November 1994. The UNCLOS came in force on 16 November 1994 while the Agreement for the implementation of Part XI came in force on 28 July 1996.

Mauritius has enacted the Maritime Zones Act of 2005 which provides inter alia for the United Nations Convention on the Law of the Sea (UNCLOS) to have force of law in Mauritius and for the delimitation and management of the Maritime Zones of Mauritius.

The MOI, in close collaboration with the Prime Minister’s Office, the Attorney General Office and the Ministry of Housing and Lands is carrying out the scientific and technical studies for the preparation of the submission. It was under this project that acquisition of bathymetry data and geophysical data necessary to substantiate the submission was completed in June 2002.

The Continental Shelf Project is managed by a technical committee under the Chairmanship of the Secretary to Cabinet and Head of the Civil Service. Staff members of the MOI are presently inputting all the acquired data on a GIS platform for presentation to the UNCLCS and officers of the Attorney General’s Office are assisting with the legal aspect of the document. The deadline for making the submission to the UN CLCS is 2009.

Database of marine organisms of Mauritius

The Database of Marine Organisms of Mauritius was completed in June 2007 by a team consisting of Dr Asha Poonyth, Mr Prakash Mussai and Mr Eric Martial. The database is a compilation of over 6000 species names and over 1000 references which were, until now, scattered in various publications and other regional and international databases. The Database of Marine Organisms of Mauritius is a user friendly and interactive tool for researchers, decision-makers and anyone interested in marine biodiversity of Mauritius. The search tools provide a simple user-friendly interface with a logical and consistent design. A search option in the Database allows search of scientific names, while a browse option displays a list of species under selected higher taxa or
species occurring around islands of the Republic of Mauritius. A reference search menu allows
search of references using author names, or titles, year of publication or species names. Easy and
rapid data access will benefit education, research and management of marine biodiversity and
ecosystems in the Republic of Mauritius.

The database will help people and organisations save precious time and money while searching
for primary data on the marine species of Mauritius. It is expected to become a valuable decision-
making tool for policy makers, industry, resource managers and researchers working on marine
biodiversity. The Database of Marine Organisms of Mauritius can be accessed at http://moi.gov.
mu/marinedb

Modelling and mapping oceanic processes of South-West Indian Ocean: a satellite-based approach

“Mapping and Modelling of Oceanic Processes of the South West Indian Ocean” (SWIO) is a
project targeted towards the application of remotely sensed data. Considering the economic
potential of the 1.9 million Km² Exclusive Economic Zone (EEZ) of the Republic of Mauritius, it
is crucial to have baseline information on oceanic processes occurring in our region. Traditional
methods to study the ocean are important but considering the huge amount of funding required
to carry out such conventional studies, in term of ship time, it is far more cost effective to use
satellite imagery coupled with selective ground truthing.

Satellite imagery gives a synoptic view of the ocean allowing coverage of vast areas with a
number of measurable parameters such as Sea Surface Temperature, Chlorophyll ‘a’ (which gives
an indication of productive areas of the ocean), Surface currents, Surface slope, etc. The aims of this
satellite-based project are to map and characterise ocean dynamics in terms of bio-physical processes
occurring in the region. Following the production of a detailed inventory of satellites-based
sensors, the data compilation phase was started. Oceanographic data such as, Chlorophyll ‘a’, Sea
Surface Temperature, Absolute Geostrophic Velocity and Maps of Absolute Dynamic Topography have been compiled and archived. The updating of satellite data is an ongoing process. As an additional product of this project, an
atlas will be generated to depict the ocean dynamics in the SWIO in terms of its bio-physical
processes. Emphasis is laid on large scale oceanic processes in the study area. The project will
ultimately focus on local near shore ocean dynamics. This project will serve as a platform to
initiate an observing system for operational oceanography, with the tracking of productive areas
in relation to Potential Fishing Zones and forecasting of ocean currents for Search and Rescue
operations.
Study of the lagoon-beach interactions at specific sites around Mauritius for a better control of coastal erosion

Beach erosion is a generalised phenomenon which affects more than 70% of the sandy coastline around the world. In the western Indian Ocean, it is one of the main concerns of small island states because of the economic importance of coastal tourism. Beach recession severely affects Mauritius and Rodrigues even in areas where no human impacts or intervention can be identified. With the rapidly growing tourism industry, the coastal zone must be considered as the most valuable economic area. In the context of the expected acceleration of sea level over the next century, coastal erosion may become more serious as both the intensity and the frequency of storms are expected to increase. Some anthropogenic activities have contributed to beach erosion acceleration or to beach destabilisation in some places.

The aim of the study is to characterise processes leading to coastal erosion at specific places around Mauritius through a geomorphologic study of the beach in conjunction with a hydrodynamics and sediment dynamic study of the lagoon. This is being achieved through time series measurement of the dynamical regime of the region under study, including bathymetry, currents, waves and tides. Quantitative and qualitative analysis of bottom sediment, suspended particulate matter and beach composition along with the time series measurement of beach profiles will be undertaken. The sediment budget for the reef-lagoon-beach system under study and the beach evolution will be determined. The data from the above will form the basis for a GIS approach in order to put forward strategic and management plans.

The project started in September 2006 after the purchase of a current meter and a wave & tide recorder. The Principal Investigator of the project is Mr Sharveen Persand and he is assisted by Mr Dass Bissessur.

Bioprospecting Mauritius waters

This project, which is being carried out in collaboration with CNRS of Paris and the University of Amsterdam, consists in an evaluation of the medicinal properties of molecules which are extracted from marine animals and plants found in the maritime zone of Mauritius. This is a relatively new area of research as compared to evaluation of extracts from terrestrial organisms. However, marine drug research is developing very fast in the world and to date about five thousand new compounds have been isolated; they all present a number of biological activities e.g. dolastatin, a small dipeptide isolated for the first time from a shell-less mollusc collected in Mauritius by foreign scientists, is now undergoing phase 3 clinical trials against refractory prostate cancer.
This three-years’ project was initiated in November 2004 and has as objective the identification and isolation of bio-active molecules from selected marine organisms. The extracts and isolated compounds can eventually be sold to the pharmaceutical industry for drug development. At present, the project is concentrated on marine sponges. These are marine animal which, being sessile, produce a number of chemicals against potential predators and fouling organisms. Previous research has shown that these chemicals have unprecedented anticancer properties due to their unique molecular structures. In fact, one of the extracts obtained during the course of this study has revealed extremely high activity against cancer cells. Additional tests are being carried out on the extract concerned. In addition two compounds, which were unknown to science, have also been discovered during the course of this project. They are presently being investigated for their medicinal properties.

During the study, about one hundred sponge specimens have been collected from 40 dive sites and 70 have been taxonomically identified. This information will be incorporated in a sponge guide which will be one of the outputs from the project. It is expected that the guide will be an important tool as a catalogue of this little-known group of organisms.

Genetic connectivity and its implications for the design and management of Marine Protected Areas (MPAs) in the East African Ecoregion

The establishment of Marine Protected Areas (MPAs) is important for the preservation and sustainable use of fisheries and other marine resources. One of the important factors to consider for the design of a network of MPAs is the spatial pattern of reproductive connectivity for key species. This three-year regional project, funded by the Western Indian Ocean Marine Science Association (WIOOMSA), aims at assessing the population genetic structure of reef-associated fish species and reef-building hard corals along the eastern seaboard of Africa and islands of the western Indian Ocean with the purpose of providing reliable background data pertaining to the level of genetic connectivity across the region and between protected and unprotected reefs. It will also provide data on commercially important fish species to be used by national fisheries authorities as a starting point for sustainable fish stock management through identification of local breeding population. Besides addressing connectivity across the region, this regional project will also generate data which will be used locally for investigating the connectivity between MPAs and non-MPAs. Data will be collected from selected local sites and will be used to assess the genetic diversity and connectivity of fish species and reef-building hard corals for the design and management of MPAs in Mauritius. The main collaborators in this project are the Mauritius Oceanography Institute, CORDIO East Africa (Kenya), University of Dar Es Salaam (Tanzania) and the Sodertorn University College (Sweden). The project started with a Project Planning Meeting which was held at CORDIO (Mombassa) in March 2007. It was decided that during
the first year of the project, the population genetic structure of the fish *Scarus ghobban* and the coral *Pocillopora damicornis* would be investigated at three sites in Mauritius, Kenya and Tanzania. From May to June, samples of *S. ghobban* and *P. damicornis* were collected from the region of Mahébourg, Le Morne and Trou aux Biches. A total of ninety samples of *S. ghobban* and of *P. damicornis* have since been sampled in Mauritius for genetic analyses using mitochondrial markers, microsatellite markers and Amplified Fragment Length Polymorphism (AFLP).

**Development of a pilot project for coral farming for tourism, export, education, research and conservation**

The reefs of Mauritius are important for coastal protection, to the fisheries and tourism industries and also for the preservation of biodiversity. However they are under constant threats from marine and land-based activities. Apart from human interference, natural disturbances such as cyclones, bleaching and diseases have also contributed to their further degradation. These are indeed enormous challenges that the coral reef ecosystem in Mauritius are currently facing.

This two-year pilot project, which is being carried out in collaboration with the Ministry of Agro-industry and Fisheries, will be investigating optimal nursery conditions for growth and propagation of corals in ocean and land-based nurseries. The farmed corals will be used for coral conservation initiatives, for the propagation of rare/threatened/endangered species, for the marine aquarium trade and for the establishment of a coral aquarium. During the trial phase of the project, surveys have been conducted in the lagoon and on the outer reefs to identify sites for creating the ocean-based nurseries and to look at the distribution and abundance of potential candidate coral species for coral farming. Four species of corals, namely *Acropora muricata*, *A. austera*, *Pocillopora damicornis* and *Porites rus* have been selected for farming because they are abundant in the lagoon and also because they are in high demand by aquaculturists. The ocean and land-based nurseries have been installed at Albion. The land-based nursery consists of three circular tanks of 10 tonnes capacity. The tanks are being housed in a 50% transparency shed. Three galvanised metal tables have been placed at sea for the creation of the ocean-based nurseries. Corals will be transplanted to the land and ocean-based nurseries as from September/October 2007.

**Bathymetric survey of the shallow lagoons of Mauritius**

Attempts have been made in the past to acquire bathymetric data of the lagoons of Mauritius and Rodrigues using different methods and with varying degrees of accuracy. These data are sparse and not necessarily accurate for the investigation of the various coastal processes of the
In order to remedy this situation the Mauritius Oceanography Institute has deemed it necessary to obtain accurate bathymetric data of the lagoons of the Mauritian and at a later stage that of Rodrigues. Consequently the MOI has purchased the appropriate equipment—a high frequency single beam echosounder Navisound 215 with a depth range of 0.2 to 600 m and the accessory software for the processing of the data. The surveys consist in running close transects in the lagoons with the equipment attached to a boat for real time collection of the data. The equipment was commissioned at the end of August 2006 and a number of sites around the island have been earmarked for the work. Surveys started at Flic en Flac on the leeward side of the island in September 2006 and have now been completed. The second site under investigation is Belle Mare, situated on the windward side of the island, where work started in April 2007 and is now nearing completion. In situ verification of the data corroborate well with the profiles. The first phase of the project is expected to last for 3 years. It is envisaged that the bathymetric data will be instrumental in investigating the zonation patterns of lagoonal biotopes, preparation of inundation maps, current patterns and beach erosional processes.

Oil and Gas Exploration

On 13 March 2006, the Mauritius Oceanography Institute, on behalf of the Mauritian Government, signed a Memorandum of Understanding with the Oil and Natural Gas Commission Videsh Limited of India for cooperation in the field of hydrocarbon exploration. The project also has a component of capacity building.

Development of tsunami preparedness map

In an effort to develop a tsunami warning and mitigation system for the Indian Ocean, the IOC/UNESCO mounted a series of meetings to urge all the countries in the region to work towards the establishment of such a system. As an active stakeholder in the development of a regional tsunami warning centre, Mauritius produced a national report which clearly depicted the responsibilities and the course of action of all institutions involved in the establishment of a national tsunami warning system. One of the components of the work plan, the assessment of national tsunami risk (hazard assessment) was entrusted to the Mauritius Oceanography Institute (MOI) by the Central Cyclone
and other Natural Disasters Committee (CCNDC). MOI officers attended some training workshops in the context of modelling tsunami events which were conducted in Malaysia and Philippines. These capacity building programmes helped the MOI in the preparation of a Tsunami Preparedness Map based on modelling outputs of tsunami events. Modelling of tsunami events were carried out based on mathematical simulation (the original model was developed by Professor Modesto Ortiz of the Centro de Investigación Científica y de Educación Superior de Ensenada), to assess potential risk in the event of a tsunami in Mauritius. This is an attempt at producing a first version of a Tsunami Inundation Risk Map (TIRM). This official TIRM of Mauritius and Rodrigues will be used by the Mauritius Police Force for the development of an evacuation strategy in case of a tsunami.
Staff Training

Training Programme on Registry Systems and Procedures

Ms. L. Seeballuck, Assistant Administrative Officer participated in a training programme on Registry Systems and Procedures organised by the Ministry of Civil Service and Administrative Reforms from 3 to 5 October 2006 in Port Louis. Ms. L. Seeballuck also attended a follow-up course on Registry Systems and Procedures on 17 November 2006.

Joint IODE/IOI Training Course on GIS and Remote Sensing for Coastal and Ocean Management

Mr. M. R. Badal, Project Officer at the Mauritius Oceanography Institute participated in a training course in GIS and Remote Sensing (RS) which was organised jointly by the International Oceanographic Data & Information Exchange (IODE) and International Ocean Institute (IOI) at the project office of IODE in Oostende, Belgium from 18 to 23 September 2006. Participants from Indonesia, India, Ukraine, Soviet Union, Bulgaria, Kuwait, Mauritius, Senegal, Ghana, Iran, Ecuador, Chile, Brazil and Malta were sponsored to participate in the course.

The lecturers were Mr. D. Donoghue (Durham University, UK), Mr. C. Galdies (IOI, Malta), Mr. G. Reed (Australian Oceanographic Data Centre, Australia) and Mr. M. Brown (Chief Editor, Ocean-teacher). The course consisted of theoretical classes and practical sessions on computers. Mr. Badal was sponsored by the IOC of UNESCO.

Second Leadership Development Workshop and Discussion on a Marine Action Plan

Dr. A. Poonyth, Project Officer of the Mauritius Oceanography Institute, participated in the Second Leadership Development Workshop and Discussion on a Marine Action Plan in Zanzibar, United Republic of Tanzania from 25 to 28 October 2006. The workshop, in which about 25 scientists from the east African region participated, was an initiative of the Intergovernmental Oceanographic Commission of UNESCO, the Western Indian Ocean Marine Science Association, and the New Partnership for Africa’s Development (NEPAD).

The main objective of the workshop was to reinforce leadership knowledge and skills acquired during the first leadership workshop held in Mozambique in November 2005. The workshop also aimed at strengthening personal and professional relationships and networks and at providing an opportunity to practice leadership and team skills through a series of work-related assignments. Dr. Poonyth was sponsored by the organisers of the workshop.
MarBEF (Marine Biodiversity and Ecosystem Functioning)/IODE (International Oceanographic Data and Information Exchange) Biodiversity Data Management Training Course

Mr. E. Martial, Project Officer at the Mauritius Oceanography Institute participated in the Biodiversity Data Management Course that was organised jointly by the IOC Project Office for IODE (Intergovernmental Oceanographic Commission of UNESCO Project Office for International Oceanographic Data and Information Exchange Committee) and VLIZ (Flanders Marine Institute). The course was held at the Intergovernmental Oceanographic Commission Project Office in Oostende, Belgium from 19 to 23 March 2007. This training was specific for biodiversity data management with details on specific data needs for taxonomy and geography. The course was a combination of lectures and hands-on activities. Fourteen participants from four continents attended the training course which was divided into three different parts, namely data management, data quality and data analysis. Mr. Martial was sponsored by the organisers of the course.

UNESCO / IOC Bid-Writing Workshop for the Western Indian Ocean Region

A bid-writing workshop was organised following the one on ‘Leadership Development and Discussion on Marine Action Planning’ in Zanzibar in October 2006. It was expected that the participating institution would then work together to develop a proposal for subsequent submission to a relevant donor agency.

The bid-writing workshop was organised by UNESCO / IOC with the assistance of Dr. J. Hills, consultant from Envision, a British based company. Participating countries to the workshop were Kenya, Mauritius, Mozambique, Seychelles and Tanzania. Mr. S. Persand, Project Officer at the Mauritius Oceanography Institute participated in the workshop in Mombassa, Kenya from 16 to 20 April 2007.

The main aspect of the project proposal was to build capacity at regional level to cater for studies relating to the different themes identified whereby hydrodynamic modelling and the use of GIS would play prominent roles. The eventual output of the project would be the development of strategic and management plans which would then be extended to other regions of the Indian Ocean. Mr. Persand was sponsored by IOC and the Western Indian Ocean Marine Science Association (WiOMSA).

Training Workshop on Buoy Programme Implementation and Data Management

A training workshop on Buoy Programme Implementation and Data Management was organised from 11 to 15 June 2007 in Oostende, Belgium by the UNESCO/IOC Project Office for IODE in collaboration with the Data Buoy Cooperation Panel which is an official joint body of the World Meteorological Organisation (WMO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO. Mr. S. Persand, Project Officer, of the Mauritius Oceanography Institute
attended the workshop. The curriculum for the training course covered the application and management of data from various in situ oceanographic and marine meteorological platforms, and trainers were drawn from a wide spectrum of the international data buoy community. Participants were given specific assignments at each stage of the workshop so as to maximise the impacts and benefit of the workshop. Mr Persand was sponsored by the UNESCO/IOC Project Office for IODE.

Collaborative Research in Bio-prospecting with the CNRS, France

The Centre National de Recherche Scientifique (CNRS) invited Dr. D. Marie for a period of one month from 1 to 30 June 2007 in order to finalise some of the research work that the MOI is carrying our in collaboration with them. Additionally Dr. D. Marie had the opportunity to discuss ways to further develop the existing collaboration between the two institutions. On the 7 and 8 June, Dr. D. Marie attended an international conference organised by the Institut de Chimie des Substances Naturelles at the CNRS. Dr. Marie was sponsored by the CNRS and the French Embassy in Mauritius.

ODINAFRICA Marine Biodiversity Data Mobilisation (Decapoda) Workshop

Mr. P. Mussai, Associate Research Scientist, at the Mauritius Oceanography Institute attended the ODINAFRICA Marine Biodiversity Data Mobilisation Workshop at the Intergovernmental Oceanographic Commission Project Office in Oostende, Belgium from 4 to 15 June 2007. This workshop was organised by the Intergovernmental Oceanographic Data Exchange Committee and ODINAFRICA, as part of its Marine Biodiversity project.

The main objectives of the workshop were to demonstrate the online functionality of the APHIA database, used and maintained by Flanders Marine Institute, to train participants in inputting data at biogeographical level, to detect potential conflicts while managing marine biodiversity data and to find ways to resolve them.

Collaboration was sought to investigate the means to maintain the update of the taxonomic classification of the species in Database of Marine Organisms of Mauritius. Mr. Mussai was sponsored by the organisers of the workshop.

Training on Porifera Taxonomy and Study of the Porifera Collection of the Zoological Museum

Mr. P. Mussai, Associate Research Scientist at the MOI participated in a training course on marine sponges (Porifera) taxonomy and studied the collection of Porifera at the Zoological Museum of Amsterdam from 16 to 30 June 2007. This attachment was linked to the creation of a marine sponge guide in the context of the project on “Bioprospecting Mauritius waters”. Mr. Mussai was in Belgium for a sponsored workshop prior to this training course. The MOI covered the additional costs linked to the training course.
Participation in International Conferences and Meetings

Stakeholders Workshop on Postgraduate Training Programme in Marine Sciences

On the invitation of the Institute of Marine Science (IMS) of Zanzibar Dr. M. Bhikajee, Director of the Mauritius Oceanography Institute attended the Stakeholders’ Workshop on Post Graduate Training Programmes in Marine Science in Zanzibar on 7 and 8 September 2006.

The two-day workshop was organised by IMS in order to obtain the views of stakeholders on three regional post graduate courses which it intends to start in 2007. The courses are M.Sc. in Marine and Coastal Resources Management, M.Sc. in Marine and Coastal Geo-informatics and M.Sc. in Maritime Archaeology. The course would last for a period of one year for the taught part and would be followed by a six month research project.

Meeting of the Indian Ocean branch of the Census of Marine Life Programme – Dar-es-Salaam

The Indian Ocean branch of the Census of Marine Life (CoML) held a meeting at the University of Dar-es-Salaam on 9 September 2006 in order to determine ways by which Indian Ocean countries could participate in its programme by contributing data for the global database on marine organisms. The CoML sponsored the participation of the Director of the MOI in the meeting.

The Census of Marine Life is a growing global network of researchers in more than 70 nations engaged in a ten-year initiative to assess and explain the diversity, distribution, and abundance of marine life in the oceans.

Through 2010, scientists worldwide will work to quantify what is known and still unknown about the world’s oceans— which comprise more than 70 percent of the Earth’s surface and more than 90 percent of its biosphere. Their answers will help identify threatened species and important breeding areas, helping authorities develop effective strategies for the sustainable management of marine resources. New pharmaceuticals and industrial compounds are also among the potential uses of the estimated thousands of unidentified species that will be found.

The International Society for Reef Studies (European Meeting)

The International Society for Reef Studies Meeting, hosted by the University of Bremen and organised by the Centre for Tropical Marine Ecology (ZMT), was held from 19 to 22 September 2006 at the University of Bremen, Germany. A total of 290 participants from 36 countries
attended the meeting, which had two parallel sessions with 130 oral presentations, 124 poster presentations, 5 keynote lectures and one public lecture. Dr. K. R. Moothien Pillay, Project Officer at the MOI attended the meeting. Some of the highlights of the meeting were on the Indian Ocean and its adjacent seas in relation to the 1998 coral bleaching event and the 2004 tsunami.

At the meeting, Dr. Moothien Pillay presented the scientific results on the 1998 bleaching event in Mauritius, on the ecological status of the Mauritian reefs and on the genetic structure of bleaching resistant corals in Mauritius.

The participation of Dr. Moothien Pillay in the Meeting was supported by the Western Indian Ocean Marine Science Association (WIOMSA).

Sustained Indian Ocean Biogeochemical and Ecological Research workshop

Dr. M. Bhikajee, Director of the MOI participated in the “Sustained Indian Ocean Biogeochemical and Ecological Research” workshop held at the National Institute of Oceanography, Goa, India from 3 to 6 October 2006.

The purpose of the workshop was to bring together scientists and heads of institution working in the field of nitrogen, carbon and general nutrient cycling in the Indian Ocean.

Thirteen Indian scientists and thirty foreign scientists from various countries presented the results of their research findings in the workshop.

Discussions centred around gaps in the existing data and on the ways of bridging these gaps. The northern Indian Ocean appeared to be well documented in terms of published data from scientific cruises. However the area below the equator especially the central Indian Ocean had very little data, due mostly to the limited capacity available in the countries of that region.

Dr. Bhikajee was sponsored by the Western Indian Ocean Marine Science Association

“Strategy and Action Plan for the Development of the Fisheries Sector in Rodrigues” Workshop

Dr. M. Bhikajee, Director of the Mauritius Oceanography Institute participated in the “Strategy and Action Plan for the Development of the Fisheries Sector in Rodrigues” workshop held from 8 to 9 November 2006 at the Cotton Bay Hotel, Rodrigues by the Rodrigues Regional Assembly. After the two days’ exercise, the priorities for fisheries development in Rodrigues were listed and action plans would be developed in order to meet these priorities.
Fourth Session of the IOC Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning & Mitigation System (ICG/IOTWS).

The ICG/IOTWS held its fourth meeting in Mombassa, Kenya from 28 February 2007 to 2 March 2007. ICG/IOTWS is made up of UNESCO/IOC member states and was established by a resolution of its General Assembly. The ICG prime objectives are the coordination of the activities of the Indian Ocean Tsunami Warning & Mitigation System (IOTWS) and the implementation of the IOTWS within a multi-hazard framework.

Prior to the ICG meeting of Mombassa, inter-sessional activities were held in which the members of the technical working groups met to discuss on their individual group-activities. The number of participants in attendance was over 100 persons from 15 Indian Ocean countries and other organisations. Mauritius was officially represented in the ICG meeting by the Director of Meteorological services, Mr. S N Sok Appadu. The representative of MOI, Mr. R. Badal, Project Officer was also invited in view of his proposed secondment to the IOC Perth Secretariat Office.

The fourth session of the ICG meeting was officially introduced by Dr P. Bernal, Assistant Director of UNESCO and Executive Secretary of IOC. His Excellency Dr M. Awori, MP, EGH, Vice President and Minister for Home Affairs and National Heritage of Kenya officially opened the ICG meeting.

Regional collaborative project on “Genetic connectivity and its implications for the design and management of marine protected areas in the East African Ecoregion”

Dr. R. Moothien Pillay, Project Officer of the Mauritius Oceanography Institute attended a workshop on the project entitled “Genetic connectivity and its implications for the design and management of marine protected areas in the East African Ecoregion” from 5 to 9 March 2007 in Mombassa, Kenya.

The project is funded by WIOMSA under a Marine Science for Management (MASMA) grant. The overall aim of the regional project is to assess the population genetic structure of reef associated fish species and reef-building hard corals along the eastern seaboard of Africa and islands of the western Indian Ocean with the purpose of providing reliable background data pertaining to the level of connectivity across the region and between protected and unprotected reefs.

The main investigators are Dr. S. Visram, (CORDIO Mombassa, Kenya), Dr. S. Said (Institute of Marine Science, University of Dar-es-Salaam, Tanzania), Dr. R. Moothien Pillay (Mauritius Oceanography Institute, Mauritius) and Associate Professor M. Grahn (Soderton University College, Sweden).
“A Regional Perspective on Marine Protected Areas in the Western Indian Ocean”
workshop

Mr. J.I. Mosahb, Research Scientist of the Mauritius Oceanography Institute participated in a
workshop on ‘A Regional Perspective on Marine Protected Areas in the Western Indian Ocean’
from 9 to 14 May 2007 in Rodrigues Island.

The main objective of the workshop was to help in the development of effective, properly
managed MPAs in the western Indian Ocean region. This workshop was an opportunity to bring
together people who had a direct or indirect interest in MPAs to share experiences and lessons
learnt in the management of marine protected areas. The participants came from COI countries,
Kenya, Tanzania and India. The facilitators were from the UK, France and WWF Senegal.

The previous workshop held in Madagascar in 2003 addressed various issues and concerns in
connection with the MPA creation and management. The workshop was attended by various
managers, administration staff and NGOs from member countries of the COI. Representatives
of institutions from East Africa also brought their experience to the process.
Visit to Mauritius of a delegation from the Municipality of Qingdao in China

A delegation from the Municipality of Qingdao in China visited Mauritius from 24 to 27 March 2007. Mr. W. Oiyao, Deputy Director from the Institute of Oceanology of the Chinese Academy of Sciences visited the facilities of MOI at Albion on Thursday 24 May 2007.

In this context a Memorandum of Understanding in the field of oceanography was signed on 25 May 2007 between Dr. M. Bhikajee, Director of MOI and Mr. W. Oiyao, Deputy Director of the Institute of Oceanology of the Chinese Academy of Sciences.
Hakuho-Maru Cruise

The Research Vessel R/V HAKUHO-MARU (KH-06-4) of the Ocean Research Institute of the University of Tokyo conducted marine scientific research in the Exclusive Economic Zone (EEZ) of Mauritius from November 2006 to January 2007. The study consisted of two parts:

(1) Spawning and Migratory Ecology of anguillid eels in Indian Ocean and (2) Geological, Geophysical and Geochemical Surveys of the Rodriguez Segment of the Central Indian Ridge.

Mr. C. Samyan, Technical Assistant/Senior Technical Assistant and Mr. P. D. Bissessur, Research Assistant of the Mauritius Oceanography Institute participated in the second leg from 26 November to 4 December 2006. The scientific team comprised of 33 members from Japan, Indonesia, France and Mauritius.

Leg 3 of R/V Hakuho-Maru Cruise KH 06-4, with 31 scientists on board, was held from 7 December 2006 to 23 December 2006 along the Central Indian Ridge, in the south-west of Rodrigues. Mr. P. D. Bissessur and Dr. A. Poonyth were the two Mauritian observers on board the research vessel during that leg.

Leg 4 was scheduled from the 26 December 2006 to the 5 January 2007. The expedition was concentrated along the Rodriguez segment located in the Central Indian Ridge (CIR), which is situated in the Western Indian Ocean bounded more or less by the 11°S, 72°E; 26°S, 72°E; 26°S, 63°E; 11°S, 63°E. MOI participants consisted of Mr. P. D. Bissessur, Mr. V. Ramchandur and Mr. B. M. Mudhoo, Research Assistants and Mr. B. A. Motah, Associate Research Scientist.

Bathymetric survey, collection and analysis of seawater samples and CTD measurements off Belle Mare.

Mr. S. Persand, Project Officer at the Mauritius Oceanography Institute participated in the bathymetric survey, collection and analysis of seawater samples and CTD measurements off Belle Mare for the Mauritius Research Council in the context of the proposed Land Based Oceanic Industry project. The survey was undertaken on 23 January 2007 on board RV Sphyrna II off the east coast of Mauritius.

The major objective of the survey was to identify the 1000 m and the 1500 m isobath in that region and to collect preliminary information of the surface layer through the analysis of seawater samples and CTD measurements.

The bathymetry and CTD data were processed at the Mauritius Oceanography Institute, while the seawater analysis was carried out at the Albion Fisheries Research Centre.
Collection of tidal information on the outer islands

In November 2002, a tide gauge was deployed off St-Brandon in order to determine the lowest astronomical tide (LAT) of the St-Brandon group with the view to optimise the baselines and the maritime jurisdiction of the Republic of Mauritius. The mission in March 2007 was undertaken in the context of the project of collection of tidal information on the outer islands.

Mr. C. Samyan, Technical Assistant/ Senior Technical Assistant from the Mauritius Oceanography Institute participated in the 5 days cruise from 5 to 9 March 2007.

The mission was conducted from the National Coast Guard (N.C.G) vessel, CGS Guardian. The retrieval and the replacement of the instrument were effected successfully.

Bathymetric survey of the lagoon and off lagoon of Rivière Noire

Mr. V. Ramchandur, Research Assistant at the MOI participated in a cruise on the Indian Naval Survey Ship INS Sarvekshak on Friday 16 March 2007 for bathymetric survey of the lagoon and the open sea off Rivière Noire.

The survey started at around 7.30 hrs on board a small well equipped survey boat from the INS Sarvekshak. Two boats carrying the survey equipment, including an echo sounder, were used for depth measurement in the selected region. The maximum depth recorded was 275m at a distance of approximately 1500m from the reef.
REPORT OF THE DIRECTOR OF AUDIT
TO THE CHAIRPERSON OF THE
MAURITIUS OCEANOGRAPHY INSTITUTE

Report on the Financial Statements

I have audited the financial statements of the Mauritius Oceanography Institute which comprise the balance sheet as of 30 June 2007, and the related statements of income and cash flows for the year then ended and a summary of significant accounting policies and other explanatory notes.

Directors’ Responsibility for the Financial Statements

The directors are responsible for keeping proper accounting records which disclose with reasonable accuracy at any time the financial position of the Mauritius Oceanography Institute and for the presentation of these financial statements in compliance with the Mauritius Oceanography Institute Act 1999 and the Statutory Bodies (Accounts and Audit) Act 1972. This responsibility includes designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, selecting and applying appropriate accounting policies and making accounting estimates that are reasonable in the circumstances.

Auditor’s Responsibility

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with International Standards on Auditing. Those Standards require that I plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statements presentation. I believe that my audit provides a reasonable basis for my opinion.

Audit Opinion

In my opinion, the financial statements give a true and fair view of the state of affairs of the Mauritius Oceanography Institute as of 30 June 2007, and of its income and expenditure and cash flows for the year then ended. These statements comply with Mauritius Oceanography Institute Act 1999 and the Statutory Bodies (Accounts and Audit) Act 1972.
Emphasis of Matter

Without qualifying my opinion I draw attention to the following:

Allowance

In November 2002, the Board approved to enlist the services of a Higher Executive Officer (HEO) from the Prime Minister’s Office (PMO) to assist in the administrative matter. The Officer was to be present at Mauritius Oceanography Institute (MOI) on a part time basis against payment of a monthly allowance of Rs. 5,000. The allowance was revised to Rs. 6,000 as from July 2003. Since August 2004, she has not been attending duty at the MOI. With the recruitment of an Assistant Administrative Officer, the Officer was no longer involved in administrative duties. In my view, the reasons put forward for the requirement of the services of the HEO, now Office Superintendent, are not plausible. Consequently, the allowances paid to date are nugatory.

(R. JUGURNATH)
Director of Audit

National Audit Office
Level 14
Air Mauritius Centre
PORT LOUIS

12 August 2008