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WIO REEF NETWORK: FIRST REGIONAL WORKSHOP FOR EXCHANGES AND TRAINING ON CORAL REEF MONITORING

ALBION, MAURITIUS,
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-REPORT OF PROCEEDINGS-

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ACRONYMS

AFRCA	bion Fisheries and Research Center
BDROI	Indian Ocean Reef Database - <i>Base de Données Récifs Océan Indien</i>
CNRO	National Oceanographic Research Centre - <i>Centre National de Recherche Océanographique</i>
COREMO	Coral REef Monitoring Database
CRIS	Coral Reef Information System
CRTF	Coral Reef Task Force (Nairobi Convention)
EDF	European Development Fund
ERDF	European Regional Development Fund
ESA-IO	Eastern and Southern Africa - Indian Ocean
EU	European Union
FFEM	French Global Environment Fund - <i>Fonds Français pour l'Environnement Mondial</i>
GCRMN	Global Coral Reef Monitoring Network
GIF	Green Islands Foundation
GVI	Global Vision International
GDZCOI	Sustainable Management of Coastal Zones of the Indian Ocean - <i>Gestion des Zones Côtières des îles de l'Océan Indien</i>
ICRI	International Coral Reef Initiative
ICS	Islands Conservation Society
IFRECOR	French Initiative for Coral Reefs
IHSM	Fisheries and Marine Science Institute of Madagascar - <i>Institut Halieutique des Sciences Marines de Madagascar</i>
IOC	Indian Ocean Commission
ICZM	Integrated Coastal Zone Management
IUCN	International Union for Conservation of Nature
KMFRI	Kenya Marine and Fisheries Research Institute
KWS	Kenya Wildlife Service
MMP	Moheli Marine Park
MoU	Memorandum of Understanding
MPA	Marine Protected Area
MRCI	Madagascar Research and Conservation Institute
NS	Nature Seychelles
ReCoMaP	Regional Coastal Management Programme
RMNR	Reunion Marine Nature Reserve
RTC-CR	Regional Technical Committee - Coral Reefs
SIDS	Small Island Developing State
SNPA	Seychelles National Park Authority
STE	Short Term Expert
SWIO	South West Indian Ocean
TNC	The Nature Conservancy
WFD	Water Framework Directive
WCS	Wildlife Conservation Society
WIOMSA	West Indian Ocean Marine Science Association
WoRMS	World Registry of Marine Species

EXECUTIVE SUMMARY

The Indian Ocean Commission (IOC) organized a regional workshop for exchanges and training on coral reef monitoring in Albion, Mauritius, from 24 to 26 February 2015. In this context, the IOC's Biodiversity and ISLANDS projects, funded by the European Union, and the IOC's project for the Sustainable Management of Coastal Zones (GDZC), funded by the French Global Environment Fund (FFEM), will combine efforts to improve the capacity of the Regional Reef Monitoring Network. As the workshop was essentially of a technical nature, participating countries, (IOC member states & Kenya and Tanzania) were all represented by people involved in coral reef monitoring at the national level.

The agenda of the 3-day workshop was as follows:

- **Day 1: Presentation of the IOC'S current projects with marine components; presentation of national, regional and international, reef networks; briefing on the organisation of Day 2 field work;**
- **Day 2: Practical exercise in data collection by snorkelling and scuba diving and training on the use of the Coral Reef Information System (CRIS),**
- **Day 3: Exchanges on the structuring of regional activities; the development of a roadmap for 2015 - 2017 network activities; discussions on the development of a regional report for the Global Coral Reef Monitoring Network (GCRMN) by the end 2016.**

From the input of all countries involved, the overall message is that National Networks have to date (i) a heterogeneous structure at the local level relevant to the country and (ii) an interesting dynamic with many nationwide initiatives already completed, underway or planned. Various requirements, however, have been put forward and should be considered in order to establish coherent and sustainable monitoring networks. In general, the constraints and opportunities identified for improved functioning of the reef monitoring networks largely overlapped between the different territories, emphasizing the importance of regional cooperation and the sharing of benefits.

Upon completion of all working sessions and discussions held during this first regional workshop for exchanges and training coral reef monitoring, the following recommendations were drawn up:

Concerning restructuring / network organisation:

1. Requests the IOC to facilitate the formalisation of the Regional Network and in particular to finalise the charter (development complementary texts, validation and adoption).
2. Proposes that the IOC share's the workshop's recommendations and plans for the revitalisation of the Regional Coral Reef Task Force at the next Conference of the Parties of the Nairobi Convention.
3. Recommends that animation of the regional network be on a voluntary, rotating Presidency (or co-Presidency) basis by the member countries, with the support of scientific expertise to be mobilised by the IOC.

4. Acknowledges the importance of having a network that is not overly institutionalised, with focused representation by technical actors.
5. Recommends that countries structure their national networks and adopt a national action plan in order to get them up and running. Once these are established, the Regional Network can be formalised.
6. Invites the countries to nominate/elect members for national representation in the Regional Reef Network.
7. Calls to commit to facilitate a 'WIO Reef Network' session at the next WIOMSA symposium to inform stakeholders of existence of the Regional Network, to share ongoing activities and encourage wider participation especially for the regional coral reef status report.
8. Requests the IOC to work on sustainable financing mechanisms that could ensure the medium- and long-term viability of the network's core activities (regional meetings, evaluation reports, etc.).
9. Agrees on the importance of the involvement of France/Reunion in the Regional Reef Network. As France is not the beneficiary of the IOC's EDF funded projects, other budget lines (ERDF funds, etc.) must be identified to enable their involvement.

On capacity building:

10. Encourages further capacity building activities.
11. Recognises that each country will benefit from a multi-day training on the use of CRIS. The end goal of the training is that members are fully autonomous in mastering the tool.
12. Emphasises the importance of organising methodological training to harmonise reef assessment techniques and in particular to set regional standards for analysis of *in situ* observations (to improve the reliability of data between teams and countries).
13. Recognises that some countries need scuba diving certification before a real network of observers can be set up.

Concerning the Coral Reef Information System (CRIS)

14. Recognises that the CRIS is a real need for all the countries (although Mauritius has some reservations). However, various technical issues still need to be fixed before it can be used properly.
15. Encourages the timely delivery of an initial stable version that members of the regional network can use and that can also serve as a secure database for the national committees.
16. Recognises that the CRIS should be a sustainable and functional tool over the long term. Subsequent versions should therefore continually evolve and include updated complementary features.
17. Encourages future developments of the CRIS with the following priorities:
 - a) Links with dynamic taxonomic references, such as the World Registry of Marine Species (WoRMS), and regional resources such as WIOMSA's taxonomic database project.
 - b) Coordination with other regional/global databases (automatic exchange functions with the French BDROI - *Base de Données Recif, Ocean Indien* - and import modules to transfer data from CoReMo for inclusion in historical data).

- c) The development of additional complementary features in terms of reporting (data processing)
18. Expresses the need to formalise hosting options and to clearly communicate rules and regulations concerning privacy of/access to data stored in the CRIS.

In relation to the preparation of a report on the health status of reefs in the WIO region:

19. Recommends that the Regional WIO Reef Network report - that will be produced by the end of 2016 - be inspired by the work carried out as part of the revitalisation of GCRMN Caribbean network.
20. Recommends that the report include the two GCRMN nodes of the Southwest Indian Ocean Islands and East Africa mainland, in the context of the Nairobi Convention.
21. Recognises the importance of encouraging people to participate in the process by explaining the need to centralise raw data at the regional level for the production of the report. A special working session on this particular issue has been planned for the 9th Scientific WIOMSA Symposium, which falls under the framework of the Biodiversity project.
22. Expresses the need to have the support of a facilitator responsible for the scientific coordination of the process at the regional level. CORDIO seems an appropriate structure for this role.
23. Recommends the participation of an expert for each country, who would be responsible for the compilation of national data, coordination of the draft and validation of the national chapter.
24. Requests the IOC to work on the development of a data sharing agreement.

1. Background and objectives of the workshop

The Southwest Indian Ocean region is recognised as one of the richest areas in the world for marine and coastal biodiversity. However, this wealth is exposed to various threats due to human activities (demographic pressure, overfishing, pollution, sedimentation, recent oil and gas exploration, etc.) and rising sea temperatures, resulting in large-scale coral bleaching and associated mortality.

In light of the significant socio-economic and ecological values of coral reefs and their associated ecosystems, countries in the region, through regional cooperation frameworks (Indian Ocean Commission, Nairobi Convention), have aligned themselves with other global initiatives including the International Coral Reef Initiative (ICRI) and the Global Coral Reef Monitoring Network (GCRMN) to try to provide some solutions to these issues.

It is within this context that the idea of creating a Reef Network emerged with:

- The creation of GCRMN Node No. 3 in 1998, which includes the SWIO islands of the Comoros, Madagascar, Seychelles, Mauritius, France/Reunion, and GCRMN Node No. 4, which includes the mainland Eastern and Southern African countries of Kenya, Tanzania, Mozambique and South Africa.
- The creation of a Coral Reef Task Force in 2001 (under the Conference of Parties of the Nairobi Convention), which combines the 2 nodes in a single regional network.

The Southwest Indian Ocean Reef Network thereafter benefited from a period of support, in particular from various IOC projects, before experiencing a slump in 2009 due to insufficient funding.

In 2012, as part of its first phase, the ISLANDS project (IOC-EU) provided considerable support to the network of small island states in the region (IOC member states and Zanzibar) through various training activities, restructuring and the development of methodological tools.

To continue with the revitalisation work on the Regional Reef Network that was initiated under ISLANDS' Phase 1, the IOC decided to organise a regional workshop for exchanges and training on coral reef monitoring, through its Biodiversity project and ISLANDS Phase II, financed by the European Union, and the IOC's Sustainable Management of Coastal Zones project, financed by the French Global Environment Fund (FFEM).

2. Workshop proceedings

The workshop took place on 24 - 26 February 2015 at the Albion Fisheries Research Centre, Mauritius.

The workshop began with a presentation of the context and an overview of the workshop's objectives by Cathleen Cybèle (IOC). Following which, Mrs Gina Bonne (the IOC's Head of Environment and Natural Resources) and Mr Noorungee (Ministry of Fisheries), gave opening speeches.

The workshop's introduction was followed by participant presentations and validation of the agenda.

As the workshop was essentially of a technical nature, all countries involved were represented by people invested in reef ecosystem monitoring activities at the national level. It should be noted that the countries taking part in this workshop were IOC member states, as well as Kenya and Tanzania, beneficiaries of the Biodiversity project. At a more institutional level, Dixon G. Waruinge, Director of the Secretariat for the Nairobi Convention, Jerker Tamelander, Head of the United Nations Environment Programme's (UNEP) Coral Reef Unit, also representing GCRMN, and Nyawira Muthiga, President of the Coral Reef Task Force (Nairobi Convention), were also present

A list of all the participants and the agenda can be found in the Annex. The agenda for the working sessions was discussed at the beginning of the workshop and several changes were made. The agenda given in the Annex takes into account any changes that were made.

In summary, the programme of the 3-day workshop was as follows:

- **Day 1: Presentation of the IOC's current projects with marine components, presentation of national, regional and international reef networks, briefing on the organisation of the field work;**
- **Day 2: Practical training: data collection in the field and training on the use of the Coral Reef Information System (CRIS);**
- **Day 3: Exchanges and discussions on the structure of regional activities, the development of a roadmap for 2015 - 2017 and recommendations to improve network operations.**

After all of the working group sessions and discussions, recommendations were reviewed in a plenary session. The recommendations put forward can be found at the end of this report.

Mrs Ginna Bonne, Head of Mission for the IOC'S marine programme, closed the workshop.

3. Day 1: Summary of working sessions

3.1. Achievements of the Reef Network and workshop objectives (S. Ahamada)

BACKGROUND

The Southwest Indian Ocean Reef Network was created in October 1997 during an international seminar entitled “Man-Reef”, organised in Nosy Be, Madagascar. In 1999, this regional network was officially recognised as a regional GCRMN ‘Node’ for the islands of the Southwest Indian Ocean (GCRMN Southwest Indian Ocean Node No.3). The network was made up of resources personnel representing public institutions and non-governmental organisations involved in monitoring coral reefs in the Comoros, Mauritius, France/Reunion, Madagascar and Seychelles.

The Regional Network was set up with support from the Regional Environment Programme (1995 - 2000): it was funded by the European Union (EU), and implemented by the IOC.

In order to strengthen the National Networks and initiate reef monitoring activities, a second programme was implemented over 4 years (2002 - 2005) with funding from the Global Environment Fund (GEF - World Bank) and the European Union (leftover funding from PRE COI). The Regional Network thus enabled better collaboration between the states in the sub-region, by means of training activities, the upgrading of monitoring equipment, development of working tools (economic assessments, COREMO database, reef monitoring manual and a mapping manual), and public awareness campaigns. The region regularly contributed to the global GCRMN report on the status of coral reefs.

However, after completion of the IOC-GEF reef project in 2005, the Regional Network experienced problems associated with discontinued funding. Certain countries (in particular Madagascar and Comoros), also failed to collect monitoring data, and regional meetings, to prepare regional reports, were few and far between.

From 2006 to 2011, the Regional Coastal Management Programme (ReCoMaP/IOC-EU) provided support for the network. In particular, a meeting between the members was organised in Mauritius (Quatre Bornes) to draft a regional overview for the global report, “Global Coral Reefs Status Report 2008”. At a second meeting of the network, in June 2010 in Mauritius (Flic en Flac), the latest regional report on the status of coral reefs was drawn up.

Additionally, during the Conference of Parties to the Nairobi Convention, that took place in Maputo in 2001, a Regional Coral Reef Task Force was set up, integrating the reef network of the IOC member states (GCRMN Node No.3) and that of East Africa (GCRMN Node No. 4), which includes Tanzania, Kenya, Somalia, Mozambique and South Africa. This Task Force comprised the National Task Forces and a regional coral reef action plan was developed, however implementation of this plan has always proved to be difficult.

Several issues have been identified as constraints to the development of an active network including, amongst others:

- **Inadequate monitoring methods with specific management objectives. The lack of significant information/follow-up in marine protected areas is a good example;**
- **Discontinued funding;**
- **Weak institutional foundations;**

The last two points stem from a downturn in member involvement/motivation, and in particular, a distinct lack of regional meetings to enable stakeholders to meet and exchange experiences, and no regional reports in 2009, 2011 or 2012.

THE FRAMEWORK OF THE CURRENT REEF NETWORK

Revitalisation of the Regional Reef Network was kick-started in 2012 thanks to the support of the ISLANDS project and which enabled:

- **A restructuring of the National Networks;**
- **The development of an operational charter for the Regional Reef Network (draft, not yet signed by the various parties);**
- **Specific training (GIS, MPA management, monitoring methods);**
- **The development of various tools (regional summary of monitoring networks, a reef monitoring manual, a coral reef information system, communication)**
- **The implementation of various ‘good practice’ pilot projects (six regional projects and two projects in Reunion).**

The Reef Network currently receives support from several projects:

- **ISLANDS Phase II: Co-funding for this workshop;**
- **GDZC project: Pilot projects in three sites (Comoros, Rodrigues, Madagascar);**
- **Biodiversity project: Consolidation of the CRIS and the Reef Resilience Platform, strengthening partnerships with the ICRI, GCRMN, the CRTF, calls for regional projects, etc.**

WORKSHOP OBJECTIVES

The objectives of the workshop fall under two categories, general objectives and specific objectives:

- **General objectives:**
 - **Maintain the momentum of the Regional Network which was rebooted under Phase 1 of the ISLANDS project;**
 - **Improve the coordination of national actions and align them with international initiatives;**
 - **Exchange on structural changes of the Regional Reef Network to sustain its operations.**

- **Specific objectives:**
 - **Train all members of the Network on the use of the Coral Reef Information System (CRIS), including all stages of the monitoring process, from data collection in the field to data input and analysis;**
 - **Make use of the tools developed under the ISLANDS project (regional summary of monitoring networks, coral reef monitoring manual, etc.);**
 - **Exchange experiences and make recommendations on how best to improve Regional Reef Network operations;**
 - **Develop a roadmap (2015 - 2017) for the WIO Reef Network. This roadmap should include the draft of a regional report on the status of coral reefs in the region under the framework of the Global Coral Reef Monitoring Network.**

3.2. Presentation of current projects under the IOC's marine programme

PRÉSENTATION OF THE ISLANDS PROJET, PHASE II (C. LEGRAND)

<http://commissionoceanindien.org/activites/islands/>

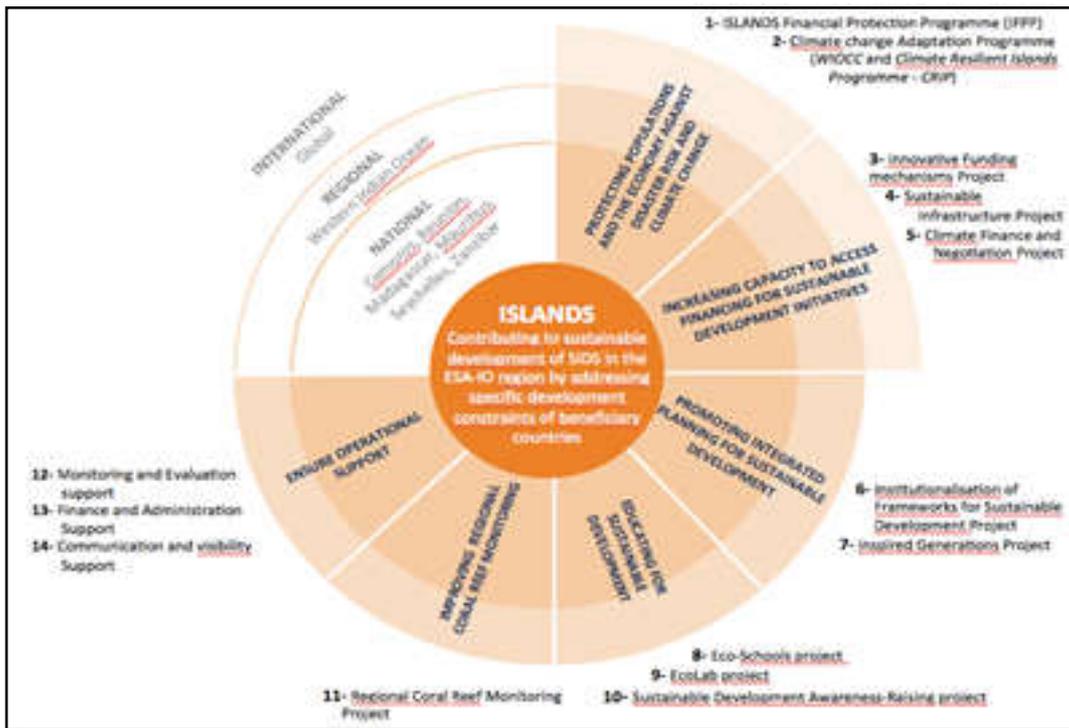
The ISLANDS project (financed by the EU) aims to contribute to the sustainable development of small island developing states in the Eastern and Southern Africa and Indian Ocean Region, by addressing the specific development constraints of beneficiary countries.

The project focuses on the concept of resilience and is centred around three anchor points:

1. **Planning, in relation to the objectives of sustainable development**
2. **Climate change adaptation**
3. **Disaster risk reduction**

Even though work at the national level is at the forefront of the project's activities, the international scope of the ISLANDS project enables the region to be in line with international initiatives and in this way allows for a good level of external openness.

The diagram below summarises the five areas of intervention in which various projects have been implemented:



More in line with the theme of the workshop, ISLANDS' fifth programmatic action, 'Improve regional coral reef monitoring', was covered in the project's Phase I in a special component (KR 2.1). However, ISLANDS' 'coral reef work' finishes at the end of this workshop, and thus serves as a means to hand over the different tools developed to the IOC's other two marine projects.

BIODIVERSITY PROJECT (D. SLACHMUYLDERS)

<http://commissionoceanindien.org/activites/biodiversite/>

The Biodiversity project is focused on the sustainable management of biodiversity resources, and is aimed at strengthening national and regional capacities in the management of biodiversity and coastal ecosystems to contribute to the conservation and sustainable use of resources (promotion of bio-sustainable applications).



The project's five result areas are:

- **Result Area 1: Improved and harmonised policies, and legal & institutional frameworks are developed;**
- **Result Area 2: Education, sensitisation and communication and information tools are developed in support of decision-makers;**
- **Result Area 3: Improved systems for networking and the exchange of information relating to biodiversity are established;**
- **Result Area 4: Biodiversity Thematic Centres are created as mechanisms for exchanging information, experiences and best practices in the sustainable use of marine and terrestrial biodiversity;**
- **Result Area 5: The contribution of biodiversity to sustainable economic development is supported or enhanced (supported by means of a 'call for projects' mechanism).**

The project's overall budget is €15 million, of which €4 million have been allocated to fund thematic activities (Result Areas 1 - 4) and €4.5 million have been allocated for the 'call for projects' mechanism which will be launched at the end of March 2015 (Result Area 5).

The project works with the IOC's member states¹, Kenya and Tanzania.

The funding agreement (EU) was signed in January 2013 but actual project implementation only began in April 2014. The project is due to end in October 2017.

¹ Reunion is not a beneficiary but participates by means of its own resources (ERDF Biodiversity project)

THE SUSTAINABLE MANAGEMENT OF THE COASTAL ZONES OF INDIAN OCEAN ISLANDS PROJECT (A. DE TOMA)

The project's objective is to consolidate, capitalise on and disseminate various approaches that have been validated by field experience within the realms of integrated coastal zone management (ICZM) and the conservation of marine and coastal biodiversity, building on local and regional active partnerships. The project is structured around 2 components:



- **Component 1: Capitalisation and the pooling of experiences, knowledge sharing**
 - **Activity 1 - Inventory and capitalisation of experiences and best practices in the region and from experts/organisations involved in such experiences;**
 - **Activity 2 - Development of experience exchanges;**
 - **Activity 3 - Support for the creation of regional databases and information systems;**
 - **Activity 4 - Support for monitoring the health status of coral reefs.**
- **Component 2: Application of ICZM best practices in three pilot sites**

After consultation with and the approval of all IOC member states, the three selected pilot sites are: Sainte Marie (Madagascar), Moheli (Comoros) and Rodrigues (Mauritius). Easy identification of local actors and ease of implementation on these small islands were paramount considerations for the selection of the pilot sites. For each of the three sites, the following activities will be developed:

- **Activity 1 - Initial diagnosis and identification of social, economic and patrimonial issues;**
- **Activity 2 - Creation of a platform for dialogue for local actors;**
- **Activity 3 - Participatory development of an integrated action plan for sustainable development;**
- **Activity 4 - Implementation of the action plan;**
- **Activity 5 - Support for the international registration of sites, in particular a biosphere reserve.**

The idea behind this project is to build on projects/initiatives implemented under previous IOC projects in order to capitalise on existing experiences and activities. Work will be carried out through partnerships developed with active stakeholders in the region to combine efforts to ensure support for the Reef Network is consistent. At the same time, small projects at the local level provide a great opportunity to interact with larger-scale projects. The project, which involves the IOC's five member states, has a total budget of €1.2 million (main funding from FGEF) and will run from 2013 to 2016.

3.3. GCRMN International: New approaches to reporting at the regional level (J. Tamelander)

BACKGROUND AND CURRENT GUIDELINES OF THE GCRMN

After a brief overview of the creation and operation of the GCRMN (www.icriforum.org/GCRMN), it was pointed out that the last discussions of the GCRMN working group, which met during the 29th ICRI General Assembly (Okinawa, October 2014), concluded that:



- **The regular preparation of regional assessment reports is the GCRMN's main activity and forms the basis for other network activities and productions such as:**
 - **The creation of a reef data inventory;**
 - **The provision of recommendations for reef ecosystem management policies;**
 - **The provision of scientific data to define reference levels of monitoring indicators;**
 - **The provision of information for more concise global reports;**
 - **Support for strengthening and establishing regional networks.**

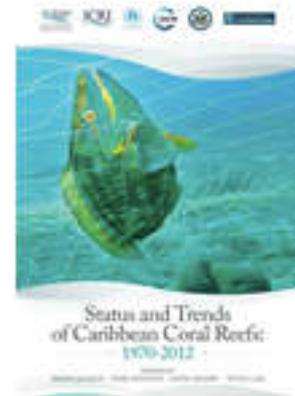
The Caribbean Network's experience of the development of the regional GCRMN report (2012 - 2014) provides a detailed overview of the new reporting approach that has been put in place.

- **The need for a document that provides guidelines for regional GCRMN reports has been acknowledged, to define the key principles of regional reporting and to facilitate the transfer of lessons learned from the GCRMN Caribbean Network. The guide should describe the main steps of the process, key considerations and recommendations to avoid common pitfalls.**
- **The periodic production of global reports on the status and trends of coral reefs is an important feature of the GCRMN. Global reports, whose development will be led by a Global Coordinator and a Scientific Director, will be prepared through the compilation of results from regional reports;**
- **The GCRMN should use existing mechanisms to raise awareness of reporting results and to encourage the implementation of recommendations:**
 - **At the international level: regional intergovernmental mechanisms (ICRI, Regionals Seas Conventions, etc.) should be used to: gain a greater understanding of environmental issues and trends; encourage action on recommendations and financing; adopt recommended reference standards for monitoring indicators;**
 - **At the regional level: the GCRMN regional nodes should be responsible for communicating the results of the reports, and for promoting and monitoring the implementation of recommendations;**
 - **At the national level: the countries should use GCRMN publications to establish their position in intergovernmental environmental conventions.**

CASE STUDY - CARIBBEAN

Background

Initial observation: “Coral reef monitoring in the region was scattered, disorganised and largely ineffective”. Thus, in terms of regional interest, the results were poor, with any monitoring being undertaken on an individual basis. A new approach to feeding back information to the regional and international levels had to be developed. With a view to strengthening regional reporting and thus revitalising the Caribbean Regional Committee, this new approach was implemented between 2012 and 2014.



The process

The idea behind this new approach was mainly to:

- **Homogenise the presentation of results at the regional level, by analysing the overall regional dataset rather than compiling the results of individual national programmes;**
- **Develop a way of cross-analysing data on the health status of reefs with those linked to conservation policies in place (marine protected areas, coastal conservation, management of water quality, etc.). The idea was to offer more than just a simple diagnosis of the state of regional reefs and move more towards the identification of relationships between cause and effect and thereafter be able to draw up recommendations based on the management of resources and ecosystems.**

The underlying step in this process was the collection of raw data from the different territories. This was done during a ‘Data Workshop’ in 2012.

A number of constraints had to be overcome during the data processing/analysis phase including: different methods of collecting data; poor use of indicators; wide spatial and temporal distribution of sampling; different data management/archiving systems and not very robust.

The report was submitted in July 2014 and had the desired effect:

- **Immediate effects:**
 - **ICRI resolution on the fishing of parrot fish;**
 - **Agreements on standard reef indicators;**
 - **Network of sites/institutions to use validated and harmonised methods.**
- **Medium-term effects:**
 - **Robust scientific baselines as tools for decision-making;**
 - **Improved access to data;**
 - **Possibility to work with more reliable ecological, economic and social data.**

Lessons learnt

Overall, the recent work carried out in the Caribbean (2012 - 2014) is a very good example of successful regional cooperation.

The lessons that can be learnt from the Caribbean experience are:

- **One of the key factors for success is the desire to contribute to regional-scale work by accepting to share national data. Several coral reef actors who worked in the Caribbean provided their data through a predefined use and sharing agreement;**
- **A large amount of data on the health of reefs already exists in scientific literature or is archived by institutions who undertake monitoring activities;**
- **Data is of little use for decision-making before it has been (i) rigorously analysed and synthesized, and (ii) used to draw conclusions on the causes of reef degradation and resilience mechanisms;**
- **Establishing conclusions and making recommendations is challenging but helps strengthen stakeholder involvement in management and monitoring activities;**
- **At the methodological level, it is important to establish which methods to use and to have a minimum of standard indicators to harmonise results from the different territories;**
- **Regional networks require clear objectives to create a favourable environment for discussions, actions and ownership;**
- **Continued leadership is essential for the coordination of activities and the efficiency of the regional dimension of the network.**

THE INDIAN OCEAN CORAL REEF NETWORK: A FAVOURABLE ENVIRONMENT FOR REGIONAL COOPERATION

The following elements represent opportunities/reasons for establishing a network at the regional level:

- **A long history of regional networking and a desire improve the monitoring of coral reefs;**
- **The desire to develop a regional report on the status and trends of coral reefs (in line with the recommendations of the General Assembly of the ICRI-GCRMN working group);**
- **Networking analysis based on the approach developed in the Caribbean for regional reporting;**
- **Development of a regional data management system (CRIS) already underway;**
- **Collaborative dimension deeply rooted in regional institutions (IOC, Nairobi Convention), which guarantees a more sustainable interest in this regional network;**
- **The United Nations Environment Programme is willing to develop a global partnership approach (UNEP, ICRI, Regional Seas Conventions, etc.) and support the GCRMN with their reflections on how reporting work may be useful for decision-making.**



3.4. Status of the Coral Reef Task Force (N. Muthiga)

A presentation of the status of the Coral Reef Task Force (CRTF) was given in the plenary session (see PPT presentation in the dropbox). The following points were brought to light:

- **Context for the establishment of the CRTF;**
- **Structure and development of the CRTF institutional framework;**
- **Areas of intervention;**
- **Achievements to date in terms of strategy, national and regional action plans, reporting and dissemination of information, research and ecosystem monitoring.**

Currently, the CRTF has not really implemented anything around the Indian Ocean islands but appears to be more active in East African countries. Indeed, Kenya and Tanzania have active national committees (N-CRTF).

In order to strengthen the structure of the CRTF and the N-CRTFs and to improve operations, discussions held at the Conference of Parties to the Nairobi Convention in 2012 led to the following recommendations:

- **Strengthening the CRTF: a regional action plan for coral reefs submitted for approval. Sources of funding are under discussion;**
- **Strengthening the N-CRTFs for effective involvement. Only a few countries have set up a National Task Force and developed a national action plan. The idea under discussion would be to fit these N-CRTFs into ICZM National Committees that are currently active;**
- **Strengthen collaboration related to 'coral reef' activities in the region;**
- **Contribute to national, regional and global reporting;**
- **Support the harmonisation of monitoring protocols used by the N-CRTFs as well as global databases (CRIS, etc.);**
- **Produce a report on the health status of coral reefs in the region. The last report was produced in 2008 under the framework of the GCRMN;**
- **Validate and translate the region action plan for coral reefs into English, French and Portuguese, to correspond with regional languages;**
- **Carry out an assessment of the effectiveness of the management of marine protected areas in the region;**
- **Support the operational implementation of biological and sociological monitoring and management;**
- **Explore sources of sustainable funding.**

3.5. Status of national networks (Countries)

Representatives of each country presented the structure of their National Networks (see PPT presentations for each country): presentation of the National Network, members, monitoring sites, challenges and prospects.

The main characteristics of each of the National Networks are summarised in the following tables.

Presentation of the National Network				Sites and monitoring stations	Problems	Opportunities & requirements
Year network created	Actors involved with the network	Network status				
Comoros	1998	NGO AIDE (<i>Association d'Intervention pour le Développement et l'Environnement</i>) under the supervision of the National Environment Directorate (DNE)	Informal	<ul style="list-style-type: none"> - From 1998 to 2008: 14 sites and 20 stations. - In 2010: 17 stations. 	<ul style="list-style-type: none"> - No monitoring since 2008: lack of human and financial resources - The Network does not have any data from other partners 	<ul style="list-style-type: none"> - The network needs new stable partners (Moheli Marine Park, University of Comoros). - Need training on reef monitoring methodology and scuba-diving - Need to map shallow areas - Need to gather existing data.
Kenya	2007	Main organisation: Kenya Wildlife Service (KWS) Actors: State Department of Fisheries, KMFRI, WWF, WCS, CORDIO.	<ul style="list-style-type: none"> - Development of the national strategy: 2007 - 2013. - Implementation of the coral reef and seagrass conservation strategy: 2015 - 2019. 		<ul style="list-style-type: none"> - No national coordination of monitoring activities - No continuous monitoring of the entire Kenyan coastline 	<ul style="list-style-type: none"> - Need for coordination between institutions - Need a platform for monitoring data - Need support from the IOC for the national node
Madagascar	1998	CNRO Masoala Marine Park/WCS IHSM MEEMF MRCI Blue Ventures (data availability problem)	Informal	30 sites, 76 stations	<ul style="list-style-type: none"> - No sustainable financing for the network - Monitoring methodologies not standardised - Difficult to get data from some NGOs 	<ul style="list-style-type: none"> - Legal formalisation of the Network. - Arrival of new actors: Southeast Research Station, NGO, creation of a General Direction of the Sea within the Ministry responsible for the environment. - Planned creation of a Coral Reef Technical Group (CRTG): MEEMF, CNRO, IHSM, WCS, Masoala Marine Park, MRCI, MNP...): to develop standard methodology, to draft the national coral reef report, to train reef monitoring technicians, etc. - Need training on reef monitoring methodology and scuba-diving
Mauritius	1991	Main actor: Albion Fisheries Research Center + other actors	Coral reef sub-committee of the ICZM Committee	21 sites	<ul style="list-style-type: none"> - No national coordination of monitoring activities 	<ul style="list-style-type: none"> - Restructuring at the national level, synergising institutions from Mauritius and Rodrigues. The National Coral Reef Taskforce should develop its own mission, objectives and activities with Terms or References, a work plan, and signed MoUs between partners - Monitoring sites on Saint Brandon, Agalega, Chagos and Tromelin planned.
Rodrigues	2014	NGOs (Shoals Rodrigues, Ter-Mer association) Public sector (Department of Environment, etc.) Local communities Private sector	<ul style="list-style-type: none"> - Coral reef sub-committee of the ICZM Committee - Pending approval of the Executive Council of Rodrigues 	20 sites, 43 stations	<ul style="list-style-type: none"> - No sustainable financing - Poor private sector engagement - Lack of people qualified to undertake monitoring activities 	<ul style="list-style-type: none"> - Initiate an ecosystem tax through tour operators to subsidise the Network - Need a training course for trainers on reef monitoring - Enhanced collaboration and regional exchanges to monitor and manage the coral reefs - Implementation of the 'Sentinels of the Reef' programme

	Presentation of the National Network			Sites and monitoring stations	Problems	Opportunities & requirements
	Year network created	Actors involved with the network	Network status			
Seychelles	1998	SNPA-GVI ICS GIF NS	Informal		<ul style="list-style-type: none"> - No mechanism for data sharing - Lack of human and financial resources to ensure annual monitoring - Monitoring programme: unclear objectives - Actors all using different monitoring methodologies - No permanent staff 	<ul style="list-style-type: none"> - Use the CRIS as a Network initialisation tool. - Use current initiatives to secure long-term funding to monitor reefs.
Tanzania	1990s: start of monitoring 2005 : creation of the Tz-CRTF	Tanzania Coral Reef Task Force – Tz-CRTF	Secretariat formel sous la direction du National Env. Management Council (NEMC); Ministry of Environment in the Vice President's Office (VPO) Governmental		<ul style="list-style-type: none"> - The Network does not have stable funding. - Communications between the 3 institutions is not effective - Actors all using different monitoring methodologies - Lack of people qualified to undertake monitoring activities 	<ul style="list-style-type: none"> - Capacity building for reef monitoring: training - Strengthen the Network by integrating reef monitoring in national reef management programmes - Greater funding for Tz-CRTF
Zanzibar	2014	The Coral Reef Monitoring Network (CRMN)	CRMN sous la direction du Department of Environment (DoE) à travers le comité GIZC.		<ul style="list-style-type: none"> - New Network, not yet very active - Lack of specific funding for monitoring activities 	<ul style="list-style-type: none"> - Strengthening of necessary skills - Integration of the Network in national and regional initiatives
Reunion	2000: local committee RECOR 2007: RMNR Consultative Committee	Reunion Marine Nature Reseve	Comitee established by prefectoral decree	GCRMN monitoring (1998): 14 stations Reserve monitoring (2006): 16 stations WFD monitoring (2015): 7 stations	<ul style="list-style-type: none"> - Aging network, no among data collectors - Sustainability of monitoring activities not guaranteed as it is dependent on stable human and financial resources - Progressive isolation of the regional context due to the lack of regular meetings for the Regional Reef Network 	<ul style="list-style-type: none"> - Integration of new descriptors in monitoring activities (coral diseases, invasive species) - Work in progress for the definition of indicators - Improved regional openness through the revitalisation of the Regional Reef Network - Development of participatory science networks (Reef Check, Sentinels). - Skills transfer at the regional level

Overview of the status of the National Reef Networks

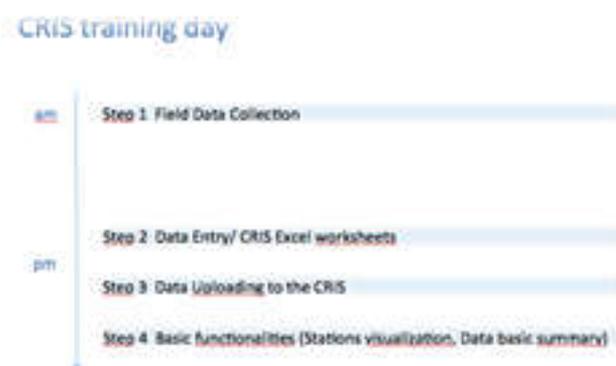
A summary, made from an analysis of the National Networks' operations, puts forward the following key points:

- ***A national structure that is getting stronger:***
 - National Networks (in the islands) were recently created or revived (2014) under the leadership of the IOC's ISLANDS project, Phase I;
 - Several National Networks however, are still informal and only operate on the willingness of the stakeholders to cooperate.
- ***Recurring issues***
 - Lack of sustainable funding to ensure regular reef monitoring;
 - Lack of qualified staff to undertake monitoring activities;
 - National Networks do not always have access to data acquired by external partners;
 - Lack of national coordination in terms of monitoring activities;
 - Monitoring methodologies not harmonised at the national level;
 - No data sharing platform;
 - Monitoring programmes have unclear objectives;
 - National Networks are isolated compared with the regional dimension.
- ***Common requirements:***
 - Stable funding to ensure monitoring activities are sustainable;
 - Training in reef monitoring methods;
 - Scuba-diving training;
 - Banking platform for monitoring data;
 - Complementary studies to improve the sampling plans (mapping of reef areas);
 - Existing data needs to be gathered;
 - National Networks need to be legally formalised;
 - Collaboration with regional counterparts needs to be strengthened.

4. Day 2: Summary of sessions

Day 2 of the workshop was devoted to training on the use of the Coral Reef Information System (CRIS) that was developed under Phase I of the ISLANDS project (IOC/EU). CRIS is a banking tool for *in situ* data collected on the health of the reef environment.

The aim of the day was to familiarise members of the IOC's Coral Reef Network with the use of the CRIS by addressing all phases of the monitoring process, from data collection in the field to inputting data on the website and testing the different features, as shown in the diagram below:



4.1. Data collection in the field (J. Wickel)

Methodological review

To ensure that all participants would be able to collect data using the protocols given in the Indian Ocean Reef Monitoring Manual (a product of ISLANDS Phase I), an overview of monitoring methodologies was given on Day 1.

The following methodologies were used:

- **Monitoring benthic communities: Point Intercept Transect & Line Intercept Transect;**
- **Monitoring fish populations: Belt transect.**

At the time of the field survey, identification of the organisms (benthos and fish) was done at three levels, based on the abilities of the participants. The three different levels of taxonomic identification are given in the table below.

Taxonomic identification level	BENTHOS	FISH
Level 1	Principal life forms & abiotic substrates	Family level identification
Level 2	Functional forms within main biotic classes (focus on hard corals & soft)	Functional groups (clusters of species)
Level 3	Genus level identification	Species level identification

On-site organisation

The field trip set off from the Club Med diving centre, on Albion beach, not far from where the workshop was being held (Albion Fisheries Research Centre). Euro-Divers Club provided the transport to get out to sea.

Thirty-nine people took part in the field trip to collect *in situ* data.

To ease logistics and ensure security at sea, the work was carried out in groups. Participants were split into six groups of divers-observers: five groups scuba dived at the front of the reef and one group snorkelled on the reef flat. The site at the front of the reef, which had been checked out before the workshop, was tailored for the deployment of five 25m transects between 6 - 8 metres deep. Each group was able to sample both benthic communities and fish populations.



The field trip took place without any problems, the participants showed that they were all comfortable and competent in the water and the objectives for the morning's activities were achieved.

Key points to remember for the success of the operation

Putting 39 divers of different levels in the water to carry out underwater surveys requires serious logistical support in terms of security. To ensure maximum security, the points below should be followed to ensure a successful mission:

- **Site:** The site must be able to accommodate several groups of divers in a small area. It should also be suitable in terms of depth (6 - 8m). Ideally, the site should not be visited by other divers/clubs on the same day;
- **Group organisation:** several groups should be established (maximum of six divers per group). These groups should then be organised according to level (ease in the water and monitoring experience). It is important to elect a Team Leader for each group (diver/experienced observer) to ensure consistency of the work in the field work;
- **A group of 'non-divers',** who can snorkel (fins-mask-snorkel), can also be made up to enable less experienced divers to carry out an underwater survey safely. A station located on the reef flats should be used.
- **Marking the stations:** the start of each transect must be marked by a surface bouy so that it can be seen by the boat. Divers should leave the boat and swim on the surface to the start of the transect. Once at the bouy, the divers can go down and start the survey;
- **Supervision by qualified instructors** must be provided (1 supervisor per group).

Photos, Day 2 - Data collection in the field



4.2. CRIS data entry (D. Obura/J. Wickel)

The objectives for the afternoon of Day 2 were (i) presentation of the CRIS and associated products and (ii) an introduction on how to use the CRIS.

Presentation of the CRIS and associated products

D. Obura gave a presentation of the CRIS tool, summarising its objectives, its current state of development, and its various features. Two videos, prepared by M. Kaminsky, were also shown to (i) explain the context of the birth of the CRIS tool and (ii) to explain the data entry process. Complementary products, developed under the ISLANDS project - a regional overview of monitoring networks and the Coral Reef Monitoring Methodology Manual - were also briefly presented and handed out to the participants.

Introduction on how to use the CRIS

The participants registered on the CRIS prior to and during the workshop, so that they could connect to the CRIS site (http://www.globalecosystemmonitoring.com/CRIS_DEV/PHP/timeout.php), become familiar with its layout and download data entry files (input data format).

Participants worked individually or in groups to input the data collected in the morning. The trainers (D Obura/J Wickel) were there to guide participants with the data entry.

The participants were given a 'quick user guide', outlining the main steps of the data entry process, to help them with the training. This guide is currently in draft form and will be finalised by the CRIS developers.

Over the course of the session, the participants went over the main steps of the data input process (user login, download data entry forms, data input, upload the completed forms to the CRIS).

At the end of the session, the key points that arose were as follows:

- **Overall, the participants showed a real interest in the CRIS. Only the representatives from Mauritius expressed reservations about using the tool to input data (mainly due to the issue of confidentiality/accessibility of raw data);**
- **Participants found that a half-day training was too short to fully grasp all aspects of the tool. They all stated that they would have preferred a longer training to be more comfortable with the use of CRIS;**
- **The CRIS is not yet fully operational: any operating abnormalities were noted and sent to the developer to be fixed in Version 1;**

- **Comments from the participants, to be taken into consideration for CRIS Version 2, include: the need for more features and greater flexibility in the choice of monitoring parameters.**

The table below provides a summary of the results of Day 2's training on data collection/data entry for the CRIS.

Activity	Positive points/Negative points	Perspectives
AM <i>In situ data collection - 39 people</i>	<ul style="list-style-type: none"> • Ease in the field +++ • Complementary national skills (benthos/fish) • High level of enthusiasm 	<ul style="list-style-type: none"> • Continue joint field trips (annual meetings)
	<ul style="list-style-type: none"> • Insufficient diving qualifications (Comoros) • Poor reliability of data - Discrepancies in the interpretation of data 	<ul style="list-style-type: none"> • Scuba-diving certifications • Methodological training focused on the IDENTIFICATION OF organisms and substrate categories to improve the reliability of data between the territories
PM <i>CRIS presentation</i>	<ul style="list-style-type: none"> • Interest in the CRIS +++ 	<ul style="list-style-type: none"> • Continue the develop of the CRIS
	<i>Introduction on how to use the CRIS</i> <ul style="list-style-type: none"> • Not yet operational • Training too short • Request for additional features • Request for more flexibility 	<ul style="list-style-type: none"> • Minor improvements, correct bugs, delivery of a working Version 1 • Additional (longer) training (national) • Integrate major developments into a CRIS Version 2
<i>Threats/effective use of CRIS in the long term</i>	<ul style="list-style-type: none"> • Need to use taxonomic references 	<ul style="list-style-type: none"> • Create a link with dynamic taxonomic databases
	<ul style="list-style-type: none"> • Concern over the sharing/privacy of raw data 	<ul style="list-style-type: none"> • Data sharing convention • Transparent communication on CRIS data accessibility levels

5. Day 3: Summary of sessions

5.1. Presentation of the Reef Resilience Platform (D. Obura)

The Nature Conservancy (TNC), an American non-profit organisation, has been developing a Reef Resilience Programme since 2005 (<http://www.reefresilience.org/>). It is a capacity building programme aimed at MPA managers and others working on coral reefs. Through this programme, TNC runs 2 manager/practitioner networks in the Caribbean and the Pacific.

Discussions held between the IOC and TNC under Phase I of the ISLANDS project, resulted in the signature of a memorandum of understanding so that members of the WIO Reef Network can benefit from (i) a free and permanent exchange platform, (ii) capacity building tools (training, experience sharing), and (iii) the opportunity to exchange with other regions of the world.

Participants were given a demonstration of how the platform works and what can be done with it (www.reefresilience.org/network/). The main objective of this platform is the sharing of information through documents that are available online, in discussion forums, from updated national activities, etc.

TNC's platform now hosts a Western Indian Ocean group in which members of the network have been invited to participate. Overall, the participants endorsed the benefits of sharing technical discussions on methodological issues or ecological reef processes.

Note: The platform is not a storage space and is not suitable for sharing heavy files/documents. For this, a link can be posted on the platform to redirect users to a specific Drop Box (or other) account.

5.2. Regional taxonomic database project (T. Andrews)

Background

One of the activities proposed under the IOC's Biodiversity project is the creation of a dynamic database (portal) for the biodiversity of the SWIO region. The main objective of this tool is to present and share information concerning regional biodiversity.

The regional scientific organisation, WIOMSA, submitted a proposal to facilitate the implementation of this database.

Basic principles

The database must be dynamic and interactive. It will be based on existing tools that are known for their functionality. The database must also be sustainable from a financial and technical perspective.

Key steps for the implementation of the project

- **Phase 1 (12 months).** Establish the foundations of the tool: set up a Steering Committee for the project; wide consultation with regional technical and institutional actors to agree upon the content and design of the database; develop infrastructure for databases, portal and for integration with OBIS/ODINAFRICA, etc.
- **Phase 2 (12 months).** Refine and expand the tool: Integration of complementary databases; develop bridges with the CRIS; establish a mapping module; identify sustainable financing mechanisms, etc.

Elements for discussion

Information in the database will be classified according to taxonomy. Links to other databases will allow access to species ecology related information or their morphometric characteristics.

In terms of the tool's geographical coverage, the countries involved include those of the WIO region together with stakeholders invited for the development of the tool under the Biodiversity project or WIOMSA (thus the possible integration of IOC member states + Kenya, Tanzania, Mozambique, South Africa, Somalia, Mayotte, etc.).

Links to the CRIS seem essential to (i) increase the usefulness of the database and (ii) to respond to the CRIS' need to use valid and regional taxonomic references

5.3. Institutional linkages and formalisation of the Regional Network (S. Ahamada)

Exchanges took place on the members' vision as to the development of the Regional Network. The following points arose:

Related to the formalisation of the Network at the national and regional level:

- **Not all National Networks are operational yet, which is a hindrance to the structuring of a network at the regional level. It is therefore important to formalise and operationalise the National Network before contributions can be made to the regional network. The formalisation of the National Network is a matter for national authorities and other national actors. The Biodiversity project could provide partial support in the implementation of activities outlined in the National Network roadmap/work plan;**
- **Care must be taken not to over-institutionalise the Network, at the risk of (i) strengthening bureaucratic rigidity, (ii) putting forward unrepresentative representatives and (iii) reducing the enthusiasm and commitment of technical actors monitoring the reefs;**

- The Network must remain true to its original mission of promoting exchanges between effective stakeholders monitoring reefs in the region;
- In relation to institutional linkages, the Network should take into consideration the Coral Reef Task Force (CRTF), under the Nairobi Convention, which incorporates the two GCRMN regional nodes (3 and 4). However, it might be worth restructuring and revitalising the CRTF based on the principles of transparency and good governance as set out in the draft charter of the WIO Reef Network and suggestions made by participants;
- To ensure National Networks have solid foundations, it is important that they are integrated in existing framework structures (ICZM committees, N-CRTF).

Related to the Network's charter:

To overcome the lack of statutes governing network activities, one of the initiatives developed under the ISLANDS project was the draft of a charter outlining the operations of the Reef Network.

- The countries involved in the ISLANDS project (IOC member states + Zanzibar) approved the charter at the project's last RTC-CR in May 2014. This charter should also be approved by East African countries (Kenya, Tanzania);
- The charter has not yet been signed. The lack of formalised national networks in several countries is preventing signature of the charter (designation of national representatives, signatories, etc.);
- Moreover, the countries expressed the need that the charter be clearly explained, in particular the roles and responsibilities of the signatories. The charter sets out a general operational framework: there is a need for additional texts to precisely define Network procedures such as internal rules which specifically designate members in each country and their functions, data sharing convention, etc.

Related to the operation of the Network at the regional level:

From the perspective of establishing a sustainable, operational Regional Reef Network, it is important to take previous network experiences into consideration to avoid making the same mistakes. As such, the following recommendations can be drawn up:

- To represent the countries in the Regional Network, it is important to select people who are aware of national and regional activities in terms of coral reef monitoring. It is therefore necessary to rely on technical advisors, divers and other stakeholders firmly involved in reef activities in the region;
- Animation of the Regional Network should be entrusted to a voluntary-based Presidency (or a co-Presidency) with support from a regional leader who would be funded for now by the current Biodiversity project. The aim is to ensure continuity after the end of the project. The Presidency should be rotating and have a short term of office;

- It is essential to move forward on the issue of the financial capacity of the Network (in particular for the funding of the Network's core activities such as regional meetings, support for the drafting of annual reports, etc.) after completion of the current projects (Biodiversity, GDZCOI). This problem of sustainable financial autonomy for the Network is recurrent (see audit report produced under ReCoMaP in 2007) and is the biggest weakness.

5.4. Preparation of the Network Roadmap for 2015 - 2017 (S. Ahamada/A. De Toma)

Discussions centred on reef activities for the coming years were carried out in 2 phases:

- Firstly by working group, (1 group per country) for the development of a roadmap for national network activities on the following themes: Network restructuring, training, communication, data collection methodology, database, reporting. The roadmaps for all countries can be found in the Annex;
- Thereafter, a review of the roadmap for each country in plenary session which allowed for the identification of priority actions that could be support/implemented in the context of the Regional Reef Network through current IOC marine projects. The ultimate goal, at the regional level, being the production of a report on the status of the reefs in the region.

The discussions that were held concerning the roadmap, led to a number of recommendations that are presented below.

The overall message is that National Networks have to date (i) a heterogeneous structure at the local level relevant to the country and (ii) an interesting dynamic with many nationwide initiatives already completed, underway or planned. Various requirements however, have been put forward and should be considered in order to establish coherent and sustainable monitoring networks.

Despite minor differences between the countries, generally speaking, most of the constraints and opportunities were the same. This finding emphasises the importance of cooperation at the regional level and the sharing of benefits.

6. Workshop recommendations

At the end of this first regional workshop for exchanges and training on coral reef monitoring, the gathered assembly:

Concerning restructuring/network organisation:

1. Requests the IOC to facilitate the formalisation of the regional network and in particular to finalise the charter (the development of complementary texts, validation and adoption).
2. Proposes that the IOC shares the workshop's recommendations and plans for the revitalisation of the Regional Coral Reef Task Force at the next Conference of the Parties of the Nairobi Convention.
3. Recommends that animation of the regional network be on a voluntary, rotating Presidency (or co-Presidency) basis by the member countries, with the support of scientific expertise to be mobilised by the IOC.
4. Acknowledges the importance of having a network that is not overly institutionalised, with focused representation by technical actors.
5. Recommends that countries structure their national networks and adopt a national action plan in order to get them up and running. Once these are established, the regional network can be formalised.
6. Invites the countries to nominate/elect members for national representation in the Regional Reef Network.
7. Commits to facilitating a 'WIO Reef Network' session at the next WIOMSSA symposium to inform stakeholders of the existence of the regional network.
8. Requests the IOC to work on sustainable financing mechanisms that could ensure the medium- and long-term viability of the network's core activities (regional meetings, evaluation reports, etc.).
9. Agrees on the importance of the involvement of France/Reunion in the Regional Reef Network. As France is not a beneficiary of the IOC's EDF funded projects, other appropriate budget lines (ERDF funds, etc.) must be identified to enable their involvement.

Concerning capacity building:

10. Encourages further capacity building activities.
11. Recognises that each country will benefit from a multi-day training on the use of CRIS. The end goal of the training is that members are fully autonomous in mastering the tool.
12. Emphasises the importance of organising methodological training to harmonise reef assessment techniques and in particular to set regional standards for analysis of *in situ* observations (to improve the reliability of data between teams and countries).
13. Recognises that some countries need scuba diving certification before a real network of observers can be set up.

Concerning the Coral Reef Information System (CRIS):

14. Recognises that the CRIS is a real need for all the countries (although Mauritius has some reservations). However, various technical issues still need to be fixed before it can be used properly.
15. Encourages the timely delivery of an initial stable version that members of the regional network can use and that can also serve as a secure database for the national committees.
16. Recognises that the CRIS should be a sustainable and functional tool over the long term. Subsequent versions should therefore continually evolve and include updated complementary features.
17. Encourages future developments of the CRIS with the following priorities:
 - a) Links with dynamic taxonomic references, such as WoRMS, and regional resources, such as WIOMSA's taxonomic database project.
 - b) Coordination with other regional/global databases (automatic exchange functions with the French BDROI database and import modules to transfer data from CoReMo for inclusion in historical data).
 - c) The development of additional complementary features in terms of reporting (data processing).
18. Expresses the need to formalise hosting options and to clearly communicate rules and regulations concerning privacy of/access to data stored in the CRIS.

In relation to the preparation of a report on the health status of reefs in the WIO region:

19. Recommends that the regional WIO reef network report - that will be produced by the end of 2016 - be inspired by the work carried out as part of the revitalisation of the GCRMN Caribbean network.
20. Recommends that the report to be produced include the two nodes of the Southwest Indian Ocean islands and East Africa mainland, in the context of the Nairobi Convention.
21. Recognises the importance of encouraging people to participate in the process by explaining the need to centralise data at the regional level for the production of the report. A special working session on this particular point has been planned for the 9th Scientific WIOMSA Symposium, which falls within the framework of the Biodiversity project.
22. Expresses the need to have the support of a facilitator responsible for the scientific coordination of the process at the regional level. CORDIO seems to be an appropriate structure for this role.
23. Recommends the participation of an expert for each country, who would be responsible for the compilation of national data, coordination of the draft and validation of the national chapter.
24. Requests the IOC to work on the development of a data sharing agreement.



Annexes

Agenda

List of participants

Letter of absence, France/Reunion

National Networks' Roadmaps

AGENDA

Time	Activities	Facilitators
	Day 1	
08:30	Participant registration	ISLANDS Secretariat (Beatrice Babet, Anushka G)
09:00	Opening of the workshop	Cathleen Cybele
	Welcome speech	IOC General Secretariat
	Speech: European Union	Delegation of the European Union in Mauritius
	Speech: IOC General Secretariat	IOC General Secretariat
	Speech: Government of Mauritius	Ministry of Fisheries
09:30	Workshop introduction	Gina Bonne
	Presentation of participants	
	Validation of the agenda	
	The achievements of the Reef Network and workshop objectives	Said Ahamada
	Presentation of the ISLANDS project	Christophe Legrand
	Presentation of the Biodiversity project	Didier Slachmuylders
	Presentation of the GDZC project	Adèle De Toma
10:30	Break / Group photo	
10:45	Status of Reef Monitoring Networks	Jude Bijoux
	Status of the Global Coral Reef Monitoring Network (GCRMN)	Jerker Tamelander
	Status of the Coral Reef Task Force	Nyawira Muthiga
	Question & answer session	
12:30	Lunch	
13:30	Status of the National Reef Networks	Countries
	Question & answer session	
	Regional metadata report	David Obura
15:45	Break	
16:00	Briefing on the field work for Day 2	Julien Wickel/David Obura
	Group training and discussions on monitoring methods and data management	
	Review in plenary session	
	Day 2	
09:00	Data collection in the field (diving)	Julien Wickel
12:30	Lunch	
13:30	Training on CRIS data entry	David Obura
15:30	Break	

15:45	Discussions on priority features: analyses required for reporting	David Obura
16:30		
	Day 3	
09:00	Summary of Day 2 field work/Review of the use of CRIS	Julien Wickel
	TNC Reef Resilience Platform test	David Obura
	Taxonomic database	Tim Andrews
10:30	Break	
10 :45	Institutional linkages and network formalisation	Said Ahamada
11:10	Roadmap 2015-2017	Said Ahamada/Adèle De Toma
	Group work (3 groups) to prepare the 2015 - 2017 roadmap, the SWIO GCRMN report and other activities	
12:30	Lunch	
13:30	Restitution of group work and discussions	
14 :30	Discussions and recommendations	
15: 30	Workshop synthesis and conclusions	Gina Bonne
16:30	Closing ceremony	



PRÉFET DE LA RÉUNION

Direction
de l'environnement, de l'aménagement
et du logement de La Réunion

Service Eau et Biodiversité

Saint-Denis, le 17 février 2015

À l'attention de
Madame Gina BONNE
Chargée de mission Environnement
durable et changement climatique
Commission de l'Océan Indien,
Ebène, MAURICE

Objet : Projets communs entre la France-La Réunion et la COI abordés au cours de « l'Atelier régional d'échanges et de formation sur le suivi des récifs coralliens » des 24, 25 et 26 février 2015 à Maurice. »

La COI organise un atelier régional d'échanges et de formation sur le suivi des récifs coralliens qui se déroule à Maurice les 24, 25 et 26 février 2015. Malheureusement, suite à des contraintes budgétaires, la France/La Réunion, représentée par la DEAL de La Réunion ne pourra pas être présente à cet atelier. Néanmoins, elle demeure impliquée dans différents projets avec la COI, dont certains vont être abordés pendant les ateliers et pour lesquels il s'avère opportun d'apporter des précisions.

L'État Français à La Réunion a pris l'initiative de développer une Base de Données pour stocker les données produites par les études menées sur les Récifs coralliens de l'Océan Indien sous juridiction française (BD-ROI).

Ce projet a été présenté à la COI dans le cadre du projet ISLANDS en mai 2014. Parallèlement, la COI développe une application (CRIS), qui doit permettre aux producteurs de données qui étudient les récifs coralliens de l'Océan Indien de bancariser leurs données. Le développement d'une « passerelle » entre ces applications est donc nécessaire afin que les données contenues dans la BD-ROI puissent alimenter la base de données CRIS. Cette spécification est bien prise en compte dans le développement de la BD-ROI et les responsables des deux projets ont déjà eu l'occasion de se rencontrer pour en discuter. L'IFREMER et le MNHN, en charge du développement de la BD-ROI, restent donc à disposition de la COI pour travailler à ce projet, et sont en attente de la réception du modèle de données de CRIS afin de pouvoir réaliser ce travail.

Dans le cadre de l'Initiative Française pour les Récifs Coralliens (IFRECOR), la France va publier à la fin de l'année 2015, un bilan de l'état de santé des récifs coralliens de ses territoires d'Outre-mer. Il semble tout indiqué que les résultats qui concernent les territoires français de l'Océan Indien, puissent intégrer le rapport régional sur l'état de santé des récifs coralliens que la COI prévoit de produire. L'État Français à La Réunion reste à disposition de la COI pour travailler à ce projet.

Le point focal national
France-Réunion du projet ISLANDS / COI

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Southwest Indian Ocean Reef Network Roadmap 2015 - 2017: The Union of the Comoros

Actions	Activities	Location	Timeframe	Actors/leader
1. Restructuring	Workshop to restructure the Reef Network and to validate the National Reef Network Charter	Moroni	May 2015	AIDE, UMAMA, MMP, University + donors and institutions
2. Training	Scuba diving training for 10 people - Level 1	Marine Park	2 nd quarter 2015	AIDE, UMAMA, MMP, University
	Methodologies for monitoring and data collection	Bimbini	2 nd quarter 2015	//
	CRIS training	University	3 rd quarter 2015	//
3. Communication /Outreach activities	Produce a mini film on the reef		4 th quarter 2015	//
	Screening of the film	TV, schools, fishermen... (3 islands)	4 th quarter 2015	//
	Design posters about the reef		4 th quarter 2015	//
4. Harmonisation of collection methodologies /indicators	//	//	//	//
5. Database	Centralisation of all existing data including those collected by organisations and foreign institutions	3 islands	April/Sept. 2015	//
	Collection, monitoring and processing of new data 2015 - 2016		March/June 2016	//
6. Reporting	Atelier national de restitution du rapport national	Moroni	Beginning October 2015 June 2016	//
7. Other				

Southwest Indian Ocean Reef Network Roadmap 2015 - 2017: Tanzania

Actions	Activities	Location	Timeframe	Actors/leader
1. Restructuring	Review membership	Tanzania	March – June 2015	NEMC, ZCRMN
	Review Network TORs	Tanzania		
2. Training	Training needs assessment	Tanzania	March – June 2015	NEMC/TzCRTF, ZCRMN
	Conduct training on field data collection (TOT)	Tanzania	Oct. – Dec. 2015	IMS/SUZA/SUA
	Training on data storage (TOT)	Tanzania	Oct. – Dec. 2015	
	Develop training tools based on regional manual in Kiswahili	Tanzania (possibly also Kenya and Mozambique)		TzCRTF, ZCRMN (also Kenya and Mozambique??)
3. Communication/ Outreach activities	Networking between national, regional and international networks	Tanzania	From March 2015	TzCRTF, ZCRMN
	Strengthen communication between local partners	Tanzania	From March 2015	TzCRTF, ZCRMN
4. Harmonisation of collection methodologies /indicators	Identify different data collection methodologies currently used locally and regionally	Tanzania	March – Dec. 2015	TzCRTF, ZCRMN
	Adopt common methods	Tanzania	Oct. – Dec. 2015	TzCRTF, ZCRMN
	Evaluate methods periodically	Tanzania	Jan. – Oct. 2017	TzCRTF, ZCRMN
5. Database	Identify existing databases	Tanzania	From March 2015	TzCRTF, ZCRMN
	Integrate databases	Tanzania	From March 2015	TzCRTF, ZCRMN
	Adopt a common database	Tanzania	Jan. – Oct. 2017	TzCRTF, ZCRMN
6. Reporting	Develop common reporting format	Tanzania	From March 2015	TzCRTF, ZCRMN
	Produce half-yearly reports	Tanzania	Starting June 2015	TzCRTF, ZCRMN
	Submit report to the Regional Network	Tanzania	Starting Dec. 2016	TzCRTF, ZCRMN
7. Other				

Southwest Indian Ocean Reef Network Roadmap 2015 - 2017: Madagascar

Actions	Activities	Location	Timeframe	Actors/leader
1. Restructuring	Identification of active monitoring actors	Antananarivo	April 2015	MEEMF/Ihando Andrianjafy
	Consolidation of monitoring actors	CNRO Nosy Be	August 2015	CNRO Maharavo
	Regulatory text to formalise the creation of the National Coral Reef Network	Antananarivo	December 2015	MEEMF (Ihando) MESUPRS (Maharavo)
2. Training	Strengthen data collection	Masoala Maroantsetra	November 2015	MNP (Zavatra) WCS (Tantely)
	Operationalisation of CRIS at the national level	Masoala Maroantsetra	November 2015	MNP (Zavatra) WCS (Tantely)
	Acquisition of technical material	Antananarivo	April 2016	MEEMF
3. Communication/ outreach activities	Improve visibility, advocacy	Madagascar	April 2015	MEEMF
	Produce outreach materials (communities)	Coastal zones	June 2016	IH.SM
4. Harmonisation of collection methodologies /indicators	Adopt common methods /standard national indicators	-	February 2016	MEEMF/CNRO/ IH.SM/MNP/WCS/
	Adopt a standard format for the national report	-	February 2016	MEEMF/CNRO/ IH.SM/MNP/WCS/
5. Database	Accumulation of data on coral reefs and associated ecosystems	All of Madagascar	February 2016	
	Exploration of new sites by means of the Rapid Assessment Programme	Tamatave, Sainte Marie, Southeast, Mid-west	November 2015	National Network
6. Reporting	Prepare national report	Antananarivo	February 2016	Network
	Prepare contribution to the regional GCRMN report	-	Based on the regional calendar	Maharavo
7. Other	Pilot site for experiments (coral transplantation, effects of climate change)		September 2015	Technical group

Southwest Indian Ocean Reef Network Roadmap 2015 - 2017: Seychelles

Actions	Activities	Location	Timeframe	Actors/leader
1. Restructuring	Revive the SNCRN	Seychelles	March – June	SNPA/DoE
	Adopt national charter based on the regional one	Seychelles	July – Sept.	Whole Network (SNCRN)
	Reinforce links with CRTF through national focal point	Seychelles	March – open ended	National Focal Point (NFP)
2. Training	Train SNCRN members in CRIS & monitoring techniques	Seychelles	Oct. - Dec.	Pool of national experts
	Diver certification	Seychelles	Oct. - Dec.	Executive SNCRN Committee
	Report writing and data analysis	Open	Before Dec.	Executive SNCRN Committee
3. Communication/ outreach activities	Create Seychelles (SNCRN) group on Reef Resilience Network	Seychelles	March – June	NFP
	Establish links with other relevant local networks	Seychelles	July – Sept.	Executive SNCRN Committee
	Disseminate information/increase awareness of SNCRN (various media sources)	Seychelles	July – Sept.	Executive SNCRN Committee
4. Harmonisation of collection methodologies /indicators	Refresh existing monitoring list of fish species	Seychelles	Sept. – Dec.	All SNCRN members
	Agree on list of fish species and inverts indicators	Seychelles	Sept. – Dec.	All SNCRN members
5. Database	Get scientists and organisations with data to input data into the CRIS	Open	Open ended	Executive SNCRN Committee
	Link SNCRN with Nairobi Convention Clearinghouse and Information System	Seychelles	Sept. – Dec.	Executive SNCRN Committee/DoE
6. Reporting	Organise monthly SNCRN meetings	Seychelles	From March	Executive SNCRN Committee/ NFP
	Produce a national report/2 yrs	Seychelles		
7. Other	Identify CRTF reporting requirements	Seychelles	March	SNPA
	Incorporate clause for scientists doing research/individuals contracted for marine surveys to enter their data in the CRIS or to submit their raw data	Seychelles	Sept. – Dec.	Executive SNCRN Committee/DoE
	Approach DoE to identify sources of funding to support SNCRN and its activities	Seychelles	March	NFP

Southwest Indian Ocean Reef Network Roadmap 2015 - 2017: Kenya

Actions	Activities	Location	Timeframe	Actors/leader
1. Restructuring	Enhance National Task Force membership to reflect organisations and opportunities - CC & infrastructure development	Nairobi	Biannual	KWS/ICZM
	Align activities to national coral reef and seagrass strategy	Mombasa	One-off at the start	KWS
	Establish technical working group that contextualises the Regional Reef Network	Mombasa	Quarterly	KMFRI/CORDIO EA
2. Training	Train members on the CRIS - disseminate information on functionality	Mombasa	One-off at the start	KMFRI/CORDIO EA/WWF Kenya
	Training and standardisation of identification skills and monitoring methods	Mombasa	One-off at the start	CORDIO EA/WWF Kenya
3. Communication/ outreach activities	Raise awareness in community/ for stakeholders on: role and mandate of the National Task Force - contextualise under the Nairobi Convention	Mombasa	One-off at the start	ICZM
	Sensitise 'community' on the Regional Task Force - role, responsibilities and utility	Mombasa/ Nairobi	One-off at the start	ICZM
	Sensitise and generate consensus on data sharing	Nairobi	One-off at the start	ICZM
	Sensitise national stakeholders on national coral reef and seagrass strategy - coral reef monitoring	Mombasa	One-off at the start	KWS/KMFRI
	Reporting, feedback and National Task Force meetings	Nairobi	Biannual	ICZM

4. <i>Harmonisation of collection methodologies /indicators</i>	Develop, align and agree on methods and indicators for reef monitoring in tandem with Regional Reef Network	Mombasa	One-off at the start	ICZM/CORDIO EA
5. <i>Database</i>	Initial inventory of datasets for Kenya and compilation of a metadata report (see ISLANDS report)	Nairobi/ Mombasa	One-off at the start	CORDIO EA/NODC
	Inform National Task Force and stakeholders on the availability of CRIS and assess its suitability including the need for national coordination	Nairobi/ Mombasa	One-off at the start	ICZM / CORDIO EA
	Establish links with NODC	Nairobi/ Mombasa	One-off at the start and depending on emerging needs	ICZM
6. <i>Reporting</i>	Identifying links with the national statutory reporting process (in from EIAs and out to conventions)	Nairobi/ Mombasa	Biannual and depending on emerging needs	NEMA
7. <i>Other</i>				

Southwest Indian Ocean Reef Network Roadmap 2015 - 2017: Mauritius

Actions	Activities	Location	Timeframe	Actors/leader
1. Restructuring	1. Organise a national workshop with all stakeholders to identify: training needs; communication & outreach requirements; which data collection methods to adopt; which data bases to access; scientific articles to be published; as well as regional activities, databases, CRIS, etc.	Mauritius	April 2015	Ministry of Fisheries, President of the Mauritian ICZM sub-committee. Other actors: ICZM Committee Rodrigues, NGOs (Mauritius & Rodrigues), Private Sector, University of Mauritius, Mauritius Oceanography Institute
	2. Develop the Terms of Reference for the ICZM Committee, the work programme, agreements (MoU) between parties concerned, the list of training courses.	Mauritius	April 2015	Coordinator for this activity (5hr/day), estimated +50 working days for national restructuring
2. Training	Organise trainings based on those identified for Mauritius and Rodrigues.	Mauritius and Rodrigues	June - December 2015	As above Trainers for this activity (10hr/day)
3. Communication/ outreach activities	Based on the needs identified for communication and outreach activities: organise a workshop.	Mauritius	August 2015	As above Coordinator for this activity (10hr/day)
	Develop and publish material.	Mauritius	October 2015	
4. Harmonisation of collection methodologies /indicators	Develop methodologies to be adopted by all partners involved in reef monitoring at the national level.			As above Coordinator for this activity (20hr/day)
	Organise a workshop	Mauritius	June 2015	
	Develop and publish methodological material.	Mauritius	November 2015	
5. Database	Organise a workshop to discuss implications related to the use of the CRIS	Mauritius	May 2015	As above Coordinator for this activity (5hr/day)
	Adopt the relevant governance system related to databases	Mauritius	December 2015	
6. Reporting	Recognition of all stakeholders who	Mauritius	December 2015	As above

	<p>contribute to data collection at the national level. Publish the names of those who contribute data in related documents Set up an early warning system related to the status of the reefs at the national level</p>			
7. Other	<p>Hold national level consultation meetings before regional meetings</p> <p>Ensure respect for the sovereignty of Mauritius over Tromelin and the Chagos Archipelago in IOC documents and communications, at the regional and international level, and in GCRMN reports.</p>			

Southwest Indian Ocean Reef Network Roadmap 2015 - 2017: Reunion

Actions	Activities	Location	Timeframe	Actors/leader
1. Restructuring	Establish an IFRECOR working group from the Reserve's Consultative Committee	Marine reserve	Throughout 2015	G. Malfait / K. Pothin
	New website for the Reserve		March 2015	F. Métayer
2. Training	Watchmen/Guard training	Reunion	Throughout the year	K. Pothin
	Coral training with L. Bigot	Mayotte	Mid July 2015	L. Bigot
	Training on the PAMPA database	Reunion	April 2015	C. Bissery
3. Communication/ outreach activities	Underwater trail	Underwater trail	Throughout the year	B. Cauvin
	Animation about nature	Underwater trail	Throughout the year	B. Cauvin
	Website on the reef watchmen		June 2015	F. Métayer
	Reserve newsletter		Throughout the year	F. Métayer
	Exposition on la pêche lontan		June 2015	F. Métayer
	Film on la pêche lontan		June 2015	F. Métayer
4. Harmonisation of collection methodologies /indicators				
5. Database	WIO Database		2015	IFREMER
	PAMPA		2015	C. Bissery / K. Pothin
6. Reporting	GCRMN		Annually	B. Cauvin / K. Pothin
	Macabit monitoring		Annually	K. Pothin
	Monitoring impacts on the Reserve		May 2015	K. Pothin
	Participation in the Regional Reef Network (€10,000)			J. Wickel / K. Pothin
7. Other	Workshops with traditional fishermen			K. Pothin