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2011 was a very challenging yet exciting year for us at WIOMSA. In addition to meeting the demands from our core activities as well as those of our partners, we had to find quality time to actively be involved in an external evaluation of the Association, that was carried out from August to October 2011, and in the development of the new programme of activities for the period 2012-2017. These two activities are critical to the long-term sustainability of the Association.

The two processes provided WIOMSA with the much needed opportunity to reflect on where we as an Association ought to be in ten or twenty years’ time. It put us in the position of asking difficult questions on how WIOMSA becomes a more efficient, effective, relevant and financially viable organization.

The external evaluator, Dr Brian Davy, said in his report that “the Sida’s long term support to WIOMSA has led to the development of a cost effective, agile and very innovative organization that is a well respected regional leader in promoting a wider move to Western Indian Ocean sustainability.” With these achievements, there is still the primary concern, that WIOMSA is not yet a financially sustainable organization and is still dependent on Sida as its main core funder. He recommends that ‘Sida and WIOMSA co-develop the elements and timing of a Sida exit strategy that will lead to the financial independence of WIOMSA.”

Looking back, external evaluation of WIOMSA and the development of the new programme in 2011 have laid a strong foundation for the long-term sustainability of the Association, the benefits of which will be reaped as early as 2012!

Dr. Nirmal Jivan Shah
President
2011 was another rich and active year for WIOMSA! The Association successfully continued to be the hub of activities in the WIO region. WIOMSA organized two major events in the year: the Regional Conference on “Climate Change Impacts, Adaptation and Mitigation in the WIO region: Solutions to the Crisis” held in Mauritius in March 2011 and the Seventh WIOMSA Scientific Symposium, which took place in Mombasa, Kenya in October 2011. These events were well attended, together, attracting about 700 participants.

This Report covers WIOMSA’s activities for the year 2011. One of the major highlights for this period is the completion of twelve projects. This is the highest number of projects to be completed in a single year since the start of the competitive research grant scheme in 2000, a remarkable achievement indeed! These projects have resulted in a wealth of knowledge that is summarized in technical reports, books, journal papers and policy briefs. More concretely, these projects have not only recommended future regional priority research areas but have also made suggestions on how the management and implementation of the competitive research grant programme can be improved. WIOMSA has taken these recommendations seriously as it believes that if implemented successfully, they can significantly support new projects in achieving better results.

WIOMSA on its own and in collaboration with its partners or through its grantees organized fifteen workshops/courses/assessment events, with varied objectives and targeting different audiences in 2011. These focused on MPAs and fisheries; shoreline change; tuna management; benefits sharing mechanisms, integrated sustainable coastal development and economic valuation. Some of these were writing or wrap-up/feedback workshops organized by the MASMA projects. The MPA and fisheries, shoreline change, tuna management and economic valuation workshops, aimed not only at assessing the status of knowledge on these issues, but also provided opportunities for identifying future research needs and for regional cooperation amongst scientists, researchers, practitioners and decision-makers. The WIO-COMPAS program certified 13 Marine Protected Areas Professionals (MPA PROs) at Levels 1 and 2.

Through MARG and MASMA grants, WIOMSA in 2011 continued to support postgraduate students in several ways. At least 50 students from the region benefitted from travel grants to enable them to attend the Conference on Climate Change and the Seventh WIOMSA Symposium. A further twenty three MSc and PhD students were provided with MARG grants to attend conferences held in different parts of the world to present their research results or to visit overseas laboratories for data analysis. Twelve PhD and twenty six MSc students, registered at universities within and outside the region, received partial support for their studies, through the WIOMSA climate change projects, in which they participated. In addition to this, MASMA funds have been used to purchase equipment for some of the postgraduate students.

2011 saw the release of six new publications, the highest number of publications released in one year in WIOMSA’s history! These included Adapting to a Changing Environment; Confronting the Consequences of Climate Change, published by Oxford University Press; The Third Edition of A Field Guide to the Seashores of Eastern Africa and Western Indian Ocean Islands; the Second edition of A School Teacher’s Guide to Marine Environmental Education in the Eastern African Region and Indian Ocean Community Conservation Handbooks and Comics for Coastal Conservation. All six publications have received very good reviews.

In the lead up to the Seventh WIOMSA Scientific Symposium, two special events, the school art and boat competitions, were organized by

12 projects were completed in 2012, the highest number of projects to be completed in a single year since the start of the competitive research grant scheme in 2000! These projects have resulted in a wealth of knowledge that is summarized in technical reports, books, journal papers and policy briefs and made recommendations for future regional priority research areas.
WIOMSA and KMFRI. These events were arranged with the intention of engaging the wider community of Mombasa in the pre Symposium events, as a way to raise awareness on the coastal and marine environment and as well as raise the visibility and profile of the Symposium and ensure it was publicized outside scientific circles. The School Art Competition first ran at the Sixth WIOMSA Symposium in Reunion in 2009, targeting upper and lower primary school students in Mombasa. The boat competition, a first for the Symposium, brought together fishermen from the Beach Management Units (BMUs) around the Jomo Kenyatta Public Beach who paired up and raced using their local fishing canoes. These events attracted a lot of interest and both WIOMSA and KMFRI were requested to consider making them annual events.

Strengthening existing and building new partnerships is at the core of WIOMSA’s philosophy. A number of new partnerships were developed in 2011 and these included Indian Ocean Commission (COI) and Common Market for Eastern and Southern Africa (COMESA) (organization of the Conference on Climate Change); African Union Commission (development of African Union Climate Change Strategy); Kenya Wildlife Services and Mafia Island Marine Park (organization of Certification Assessment Events) and Council of Scientific and Industrial Research (CSIR) of South Africa (organization of shoreline change workshop).

In 2011, WIOMSA undertook a number of reviews of the core aspects of the Association such as, the Optimal Staffing Levels for the WIOMSA Secretariat, the effectiveness of communication tools, the strengthening of the role of Country Coordinators, WIOMSA’s Niche in Capacity Building and the establishment of the endowment fund. Collectively these reviews assess the overall performance of these facets of WIOMSA and provide a well-founded basis for future planning and long-term sustainability of the Association. These reports have also provided critical inputs to the evaluation of WIOMSA and development of the new programme of activities for 2012-2017.

We welcomed two new staff to the Secretariat; Tim Andrew as the Director of Outreach and Resource Mobilisation and Sware Semesi as Climate Change Coordinator. Dr. Semesi replaced Mr. Edward Kimakwa, who left to join WWF. Dr. Andrew is responsible for the coordination, supervision and implementation of all the activities related to establishment, strengthening and streamlining of outreach activities as well as scientific services and consultancy functions of the Association.

Our performance in 2011 was excellent overall, as reflected in this report. In 2011, WIOMSA continued to play a key role in several aspects. Through the production of policy briefs and organization of science to policy dialogues, the latest science has been brought to the attention of policymakers, and through the publications mentioned above (the field guide, the school teachers guide, and the community conservation handbooks and comics), has brought science to the broader public.
The external evaluation of WIOMSA and the development of the proposal for the new programme provided opportunities for reflection on the future of the Association, specifically, in relation to the financial sustainability of the core activities of the Association such as the Competitive Research Grant Programme, the Certification programme, the production of the WIO Journal of Marine Science and Book Series, and the Scientific Symposium.
In 2011, Sida commissioned an external evaluation of WIOMSA, with the overall objective of providing input into Sida’s preparations for possible continued support to WIOMSA from 2012 onwards. The review was undertaken with regard to the context in which WIOMSA operates, the impact (at different levels) of WIOMSA activities and support to research, and conclusions, recommendations and an outlook for the future. The evaluation was carried out by Dr Brian Davy, who was involved in two previous WIOMSA evaluations, and therefore had a good historical perspective of the development of the Association. The evaluation, which took place from August to October, involved face to face meetings between Dr Davy and Sida officials, WIOMSA Board of Trustees, WIOMSA Secretariat, MASMA grantees and a broad range of WIOMSA partners, as well as desk reviews of WIOMSA’s and grantees’ publications, and site visits to research projects in Mombasa and Zanzibar.

**WIOMSA in the eye of the evaluator**

In his report, the external evaluator made a number of key observations about the Association;

- WIOMSA continues to adapt, evolve and increasingly learn as an organization. For instance, if one looks back to the original conception plans of the early 90s and particularly the more recent 2006 external reviews, WIOMSA has carefully reviewed, and where appropriate taken on board, many of the reviewer comments and points suggested. It has listened and thought about these issues including developing its own path forward; and here the Board has continued to play an important role.

- WIOMSA is a key player in marine science in the Western Indian Ocean (WIO) and there is a continuing need for the Association as it plays a valued and unique role and increasingly so, given the WIO evolving priority needs. Its strengths lie in its regional character, multi-disciplinary membership, quality outputs and improving track record in implementation.

- Marine science capacities developed through WIOMSA had initially been relatively concentrated in the core countries of Tanzania, Kenya and Mozambique but it is now spreading more widely in this very diverse region including the widening mix and background of the staff of the small but seemingly very effective secretariat.
WIOMSA’s list of stakeholders continues to evolve but overall it appears to be increasing both in number and diversity (of such stakeholders) including, for instance, those involved in research, development, training, and policy (both from government as well as non-government sectors).

The priority and funding decision making process within WIOMSA, via the secretariat, program committee and Board for instance, provides what seemed to me to be a reasonably effective review and continuous priority setting mechanism.

There has been a considerable improvement in moving some of the early research more into a development activities.

Dr. Davy’s impression was that Sida’s long term support to date has led to the development of a cost effective, agile and very innovative organization that is a well respected regional leader in promoting a wider move to Western Indian Ocean sustainability. However, he noted that WIOMSA is not (yet) financially stable; it has not yet reached the level of being able to continue without further continued Sida support (i.e. become a sustainable organization). The evaluator confirmed that WIOMSA has indeed recognized this and has embarked on various strategies to promote financial independence and stability. He felt that it is in the collective interest of WIOMSA and Sida that a financially stable WIOMSA is established before Sida support ceases.

Where should WIOMSA be in the future?

Dr. Davy also provided a number of insightful recommendations ranging from the need to conduct a comprehensive organizational assessment of WIOMSA, to development of an exit strategy for Sida, including:

Sida should also consider supporting a variety of organizational assessment/change strategies. Such strategies could include more targeted assessments that seek to better understand/document the WIOMSA organizational niche and its evolution; this will be valuable in a number of ways. It will assist in defining where WIOMSA is along the development change path, which will be useful to a wide mix of groups, but particularly WIOMSA. Such learning could also provide important inputs to wider processes of organizational development, both those funded by Sida but also those of other agencies. Steps might include, for example, the elucidation and sharing of a wider set of organizational changes that have been important complements to the already documented building of capacities in marine science and the well respected science outputs.

Sida and WIOMSA should jointly develop a Sida “exit strategy”, which will include evaluation markers.

A stronger focus on a variety of issues that encompass some of the needed thinking to better guide research translation and implementation thinking. These particularly include more research on management, particularly management measures that build on some of the more promising research outputs, combined with more social science to better use and understand the processes of stakeholder/key actor involvement and overall encourage strong participatory thinking in this work.

Mechanisms should be put in place to better utilize the lessons learned through the “WIOMSA program experience” through a wider set of learning organization mechanisms that are documented and shared among a wider set of development partners. It was felt that better understanding of the development and role of “WIOMSA like organizations” could provide important development change thinking useful to WIOMSA as well as others, particularly if linked to use of a wider set of change processes that move more of this marine science into practice.

In conclusion, the review found that Sida support to date has very effectively created a successful organizational model, something to build on, to learn from and use as an example to others. This model now needs to move into a “WIOMSA++ model” based on a viable financial strategy linked to niche refinement guided by key lessons learned (“organizational pillars”) that will lead to long term organizational success.

“In conclusion, and perhaps most importantly for me, I came away excited by the increased numbers of new bright researchers, eager to tackle marine science issues in WIO. Their enthusiasm was infectious and truly impressive!”

– Brian Davy
NEW WIOMSA PROGRAMME: COPING WITH GLOBAL CHANGE, CONSOLIDATING THE GAINS

WIOMSA has taken a programmatic approach in developing a new institutional programme, entitled “Coping with Global Change: Consolidating the Gains”, parts of which will be submitted to a variety of donors for funding. The new programme is designed in a way that ensures planned activities contribute towards realization of the WIOMSA’s Vision which states that “by 2020, WIOMSA will be recognized widely as a leader in promoting the development of marine and coastal science professionals, advancing marine and coastal science, and promoting the conservation and sustainable development of coastal and marine environment”.

The development of the proposal for the new programme has been widely participatory and encompassing so that it reflects the commitment and interests of a wide range of stakeholders in achieving the sustainable management of the coastal and marine environments of the WIO region. The proposal has been enriched with inputs from different meetings and key documents as well as discussions with staff at Sida, the external evaluator, Dr Brian Davy, grantees, as well as the members of the WIOMSA Board of Trustees and the MASMA Programme Committee.

Different approaches have been used to show in a stepwise manner what has and has not been achieved to date. From these analyses the following points stand out:

1. Based on the priority research themes, habitats and large topics (such as aquaculture, climate change and their impacts, etc) covered, it is shown that 90% of the approved projects concentrated their activities on coastal ecosystems, with coral reefs and associated aspects accounting for at least 60% of the approved projects. Seven out of twelve climate change projects have a coral reef and reef fisheries focus.
2. Limited efforts have been directed in understanding the factors behind effective dissemination of information generated or how to ensure this information is taken to next level of being used for demonstration, or influencing decisions and policies.
3. Stakeholders have generally only been involved in projects through the wrap-up workshops, where they have presented the results of the projects.

4. Most of the WIOMSA’s activities are currently funded by Sida. Whilst this is a very strong and longstanding relationship, it is sensible to expand the income base for WIOMSA to maximize future sustainability and to decrease the reliance on a single donor organization that, itself, has competing priorities and pressures.

5. While many projects have provided information that is necessary for creating enabling conditions that make it possible to plan and implement marine and coastal management Programmes, fewer projects have led to changes in behaviour.

From this reflection it was apparent that the new Programme should be accompanied by strategies that will respond to the following critical questions:

» How to ensure WIOMSA becomes a more efficient, effective, relevant and financially viable organization?

» How to strengthen interactions between WIOMSA and research institutions/management authorities and between research institutions and management authorities on a regional basis?

In the light of these questions it was evident that, while research will continue to be the core of WIOMSA’s activities in the new Programme, the kind of research supported should contribute towards the creation of enabling conditions for coastal management, as well as leading to behavioural and social/environmental changes. This is only possible through the existence of a financially viable WIOMSA. Promoting behavioural and social/environmental changes, as well as strengthening the financial viability of the Association, will therefore be the key aspects of the new Programme.

The overall goal of the proposed Programme is “to establish a common regional platform by 2017 to advance and apply science for the sustainable development of marine and coastal environments, bringing together governments, institutions, the private sector and community stakeholders for joint actions, and ensuring that a financially sustainable WIOMSA plays a key role in this process”.

This goal will be achieved by implementing a results-focused and highly integrated set of specific objectives. The specific Programme objectives are as follows:

» To undertake organizational change to improve the financial and organizational sustainability of WIOMSA.

» To develop institutional capacity to identify and define problems/issues, and to conduct quality research that is relevant and critical for technology transfer and the promotion of behavioural and social/environmental change.

» To strengthen existing partnerships, and develop new ones with the intention of working together towards achieving behavioural and social/environmental change.

» To develop and implement an effective communication strategy that allows the work of WIOMSA and its partners to be used to influence behavioural and social/environmental change.

While some aspects from previous phases are maintained in the new Programme due to their continued relevance (e.g. the continued need to provide a regional marine and coastal research management function, the ongoing requirement to improve capacity at multiple levels in the region, and to improve the effectiveness of communication and information dissemination), there are several new aspects including:

The prioritization of Resource Mobilisation. This aspect is given the highest priority in the new proposal with several activities and strategies proposed to ensure long term sustainability of WIOMSA and its Programmes.

The targeting of Institutions. Recognising that there is a need to build the capacity of institutions in the region to be able to carry out research programmes, and also that institutions are important partners in WIOMSA’s work, projects and programmes that can be managed by institutions will be prioritised for funding support. The MASMA programme has
had significant successes in building capacity among individual scientists in the region, while the institutions to which these scientists often belong have had little involvement in the management of projects. It is therefore anticipated that larger institutional grants will form a more important element of the grants component of the new Programme.

Granting criteria have been re-structured to encourage co-funding from other sources, mandatory participation of either management authorities, private sector or communities, and projects should show clearly how their planned activities will lead to behavioural and social/environmental changes (in other words, activities that lead to real changes that impact on coastal communities and their environment).

A move from information generation to ‘proof of concept’ approach. Past MASMA projects have generally concentrated on filling the information gaps that were all too prevalent when WIOMSA was established. As these gaps have started to be filled, other realities have emerged which suggest that the most effective manner of ensuring that research outputs are adopted and result in meaningful change, is to implement demonstration projects which test various concepts. These concepts could include a wide range of aspects that would act together in a particular site; for example, governance issues, the answering of biological questions through research, understanding the processes involved in the dissemination and adoption of information etc.

Science-to-policy dialogues have been identified as lacking and critical to ensure change at national, regional and international levels. This will form an important part of the communications and information dissemination component of the new Programme.

As part of the new programme, in addition to planning for the capitalisation of the WIOMSA Trust, WIOMSA will also develop a strategy for approaching other donors that will aim at attracting other funding agencies and development partners to contribute to the basket of research funding that is administered through the Association. To this end there are plans to organize a meeting of potential development partners in the region in 2012.
The implementation of the project on “Climate Change in the coastal and marine environment of the Western Indian Ocean region: Assessment of Impacts and Adaptation Options”, entered its second year in 2011. This project has facilitated the implementation of a number of activities including the support of twelve research projects, the organization of a regional conference on “Climate Change Impacts, Adaptation and Mitigation in the WIO region: Solutions to the Crisis” and the production of publications and awareness materials on climate change. In addition a total of twelve MASMA projects were completed in 2011, six of which are summarized here.
CONTRIBUTING TO CLIMATE CHANGE RESEARCH AND POLICY DISCUSSIONS

The implementation of the project on “Climate Change in the coastal and marine environment of the Western Indian Ocean region: Assessment of Impacts and Adaptation Options”, entered its second year in 2011. This project has facilitated the implementation of a number of activities including the support of twelve research projects, the organization of a regional conference on “Climate Change Impacts, Adaptation and Mitigation in the WIO region and the production of publications and awareness materials on climate change. Some of the major achievements of the project in 2011 include:

Making Climate change a priority on the regional agenda

The Regional Conference on “Climate Change Impacts, Adaptation and Mitigation in the WIO region: Solutions to the Crisis”, which was held in Mauritius in March 2011, and organized jointly by WIOMSA, Mauritius Oceanography Institute (MOI), UNEP/Nairobi Convention Secretariat and the Indian Ocean Commission (COI), was the first such regional event that brought together key individuals working on climate change issues at different levels including senior Government officials, representatives of regional multi-lateral bodies, development partners, representatives of the business community and non-governmental organizations, scientists and students.

Following three days of fruitful discussions and presentations on the challenges presented by climate change on the coastal and marine environment of the WIO region and the opportunities it presents, a consensus statement was developed highlighting a number of pertinent climate change issues, vital to the coastal and marine environment of the WIO region. The statement notes that climate change provides an opportunity to pursue a sustainable development path even though the environmental and socio-economic impacts of climate change continue to threaten development gains and also to constrain present and future development. It was agreed that for the WIO region, adaptation remains the top priority; that for tackling the impacts of climate change and variability, there is no single approach.
It was agreed that for the WIO region, adaptation remains the top priority; that for tackling the impacts of climate change and variability, there is no single approach which fits all future challenges posed; and that adaptation responses will need to come from a range of approaches and practices, selected and combined to fit unique situations.
agreed in principle to have a Memorandum of Understanding that will guide future collaboration between them. Opportunities for further collaboration with COMESA are being explored.

» Existing partnerships between WIOMSA and the Nairobi Convention Secretariat, and the Wildlife Conservation Society (WCS) have been strengthened. In the early 2000s, WIOMSA signed MOUs with both these organisations, and through the climate change programme, a project funded by the World Bank titled “Developing an Implementation Strategy to Prepare for the Management of Coral Reefs in the WIO for Climate Change”, is being jointly implemented.

In all of the twelve research projects, different types of partnerships have been developed, some involving participating regional institutions as well as between institutions from within and outside the region. Partnerships have mainly been through provision of technical support in the form of laboratory equipment, access to additional financial resources, and exchange of postgraduate students and researchers.

A framework for the development of a regional Climate Change strategy developed

With input from key regional organizations as well as national institutions, WIOMSA produced a report on “Climate Change Impacts in Coastal and Marine Areas of the Western Indian Ocean Region: An Assessment of Problems, Solutions, and Strategic Options for Promoting Climate Resilient Development in the WIO Region”, which aims to motivate decision-makers and planners to better incorporate coastal and marine issues into climate change strategies and plans. One issue that is explored in the report is the benefits of developing a regional strategy versus national and sub-national strategies to promote climate-resilient development and management of coastal and marine resources.

**Additional resources secured**

WIOMSA and the research partners involved in the climate change projects have secured additional resources including the following:

A) The Wildlife Conservation Society (WCS), WIOMSA and the Nairobi Convention Secretariat secured funding from the World Bank to implement a project “Developing an Implementation Strategy to Prepare for the Management of Coral Reefs in the WIO for Climate Change”.

B) Additional financial resources for the research projects (in brackets) have been secured from:

» Netherlands Science Foundation (Coral reefs and global change)

» The National Research Foundation of South Africa (Understanding and predicting responses of mangrove trees and formations to climate change)

» WWF (Resilience and adaptation of mangroves and dependent communities in the WIO region)

» World Bank and GEF through the South West Indian Ocean Fisheries Project (Modeling the effects of climate change on the distribution of shared fishery species)

WIOMSA has the largest portfolio of research projects and activities on climate change of any regional organization in the WIO. This has ensured WIOMSA has become a centre of climate change research in the region.
CONTRIBUTING TO THE KNOWLEDGE BASE ON THE COASTAL AND MARINE ENVIRONMENTS

A total of twelve MASMA projects were completed in 2011, six of which are summarized in this report. Each summary describes the main scientific questions of each project, objectives of the project, participating institutions and the main scientific results. These projects have contributed to the increased knowledge base on different aspects of the coastal and marine environments of the region and raised awareness on important management issues.

A molecular consideration of Western Indian Ocean marine fish connectivity and differentiation at multiple spatial and temporal scales and its implications for conservation and resource management

It is widely acknowledged that integration of Marine Protected Areas (MPAs) into an effective network is hampered by inadequate understanding of ecological connectivity among MPAs across the region, whether these represent demographically open or closed systems (sources and sinks) and the extent to which these provide an export of larvae or adults to areas outside. This hampers the integration of MPAs into an effective reserve network. Further, the insufficient understanding of the biogeographic and historical origins of the WIO fauna, and little knowledge of phylogeographic and biogeographic breaks have led to limited knowledge on processes that influence connectivity.

Due to difficulties of studying connectivity directly, a genetic approach which provides a valuable and widely-accepted, indirect means of examining connectivity across the region was applied in this project. Samples for the study were collected from mainland countries (Kenya, Tanzania, Mozambique and South Africa) and Island states (the Seychelles, Comoros, Madagascar, Mauritius, Reunion and Maldives).

This project, which involved four institutions, South African Institute for Aquatic Biodiversity (SAIAB); IFREMER (Reunion); Kenya Marine and Fisheries Research Institute (KEMFRI) and Sokoine University of Agriculture (Tanzania), aimed at examining connectivity and regional intraspecific differentiation in several reef fish species across the WIO at various spatial scales, considering processes over ecological and evolutionary timeframes.

Specifically, patterns of fine-scale genetic structure and scales of connectivity were investigated in three species of importance to regional fisheries, in order to identify open and closed systems and localities that are critically isolated. Broad-scale patterns of differentiation and relationships among the regions of the WIO were investigated in nine reef species, with a view to revealing unique biogeographic regions in the WIO. While genetic data was successful in elucidating regions and localities among which there was connectivity and identifying isolated or differentiated localities, a range of differing patterns were identified among the included taxa:

Published studies of connectivity and differentiation in taxa in the WIO and elsewhere revealed some contrasting patterns to those observed in this study. This suggests that patterns of connectivity are not replicated across regions, may not necessarily be extrapolated
over larger areas and that species-specific responses to physical environmental features are to be expected. The wider sampling range and global approach of the current study has allowed for the detection of structure and restricted connectivity that may have been missed by other studies.

While there were certain points of comparison, none of the observed patterns were in full concordance with expectations of differentiation based on biogeographic hypotheses. This suggests that dispersal and local processes may override historical processes.

Conservation or management recommendations based on patterns emerging from a single species will not necessarily be applicable and achieve the desired outcomes in terms of conservation of diversity, integrity or productivity across all taxa. This – the isolation and connectivity of different localities in different taxa – is particular pertinent in the context of reserve selection, designation and integration.

This study has demonstrated the benefits of a regional collaborative project, and a global and comparative approach, involving the consideration of the full region and multiple taxa.

The spatial behaviour of artisanal fishers: Implications for fisheries management and development (Fishers in Space)

The ways that fishers distribute their fishing effort over a fishing ground can affect the ecological impacts on and the economic performance of fisheries. This distribution can be influenced by a number of social, economic, and institutional factors such as technology, management, and fishers knowledge. Many fisheries development and management interventions invariably alter the spatial distribution of fishing effort. Success of interventions such as protected areas and attempts to encourage fishing effort to move offshore often rest on largely untested assumptions about fishers spatial behaviour, and their willingness or ability to change it.

Thus, understanding spatial distribution of fishing effort is increasingly recognised as an important consideration for fisheries management. However, the spatial behaviour of fishers is poorly understood, especially in artisanal, developing country fisheries. The vast majority of research into fishers spatial behaviour has been conducted in large-scale fisheries, which are able to make use of data rich vessel monitoring systems that are frequently installed in many fishing vessels. In developing countries, however, these vessel monitoring systems are not used and little empirical work has been done to explore fishers spatial behaviour.

Thus, understanding spatial distribution of fishing effort is increasingly recognised as an important consideration for fisheries management. However, the spatial behaviour of fishers is poorly understood, especially in artisanal, developing country fisheries. The vast majority of research into fishers spatial behaviour has been conducted in large-scale fisheries, which are able to make use of data rich vessel monitoring systems that are frequently installed in many fishing vessels. In developing countries, however, these vessel monitoring systems are not used and little empirical work has been done to explore fishers spatial behaviour.
This project utilised a wide range of qualitative and quantitative methods which informed each other's design or analysis. Methods included surveys, including map-based questions, participant observation, GPS tracking, logbook collection, participatory mapping, focus groups and key informant interviews. This study was conducted in Seychelles and Kenya with the following institutions participating: Seychelles Fishing Authority (SFA); the Coral Reef Conservation Project of the Wildlife Conservation Society in Mombasa, Kenya; International Development, University of East Anglia, UK and James Cook University, Australia.

Results from surveys indicated some element of segregation of effort between handline and trap fishers between the two main islands in Seychelles. In Kenya fishing effort is concentrated within 1000m of the shoreline on fringing reefs, although distance offshore varies seasonally and significantly by vessel type, with sail and engine power allowing access to offshore grounds.

A wide range of factors reportedly influence fisher decision making in Seychelles and Kenya, dominated by weather and currents apart from fuel expenses which have come to dominate decisions in Seychelles where outboard engines are the norm. Fishers recent or past experience is used to choose fishing grounds but they can also learn from one another, either through communication, or direct observation of others fishing success.

According to the survey, spatial fishing behaviour is generally consistent with a majority of fishers using the same grounds as 10 years previously. However, 33% of interviewed fishers in Seychelles and 60% in Kenya had been displaced from fishing grounds as a result of fisheries closures or land reclamation (Seychelles). This displacement was unequally experienced with fishers in some landing sites, with lower socioeconomic status, and without fishing boats being more affected by displacement. In some cases this has led to further exploration for new grounds. Exploration in Kenya was reported as being driven specifically by low catches.

In both Seychelles and Kenya it was reported that fishers may fish close to the boundaries of fisheries closures, often with the perception of enhanced catches. Fishers also perceived that they could catch fish which had swum out of the closure. However the majority of fishers in both countries did not perceive an overall impact of closures on their catches. Perceptions of the impacts of MPAs on their livelihood varied between locations and were least positive in Kenya near state-owned parks which had limited benefits for the adjacent fishers.

Distribution of pathogenic Vibrio cholerae strains in aquatic environments in coastal areas of East Africa: Implication to cholera outbreaks and control

At present, the predominant portion of the World's cholera cases occur in Africa, particularly in socio-economically frail areas. The bacterium causing cholera, Vibrio cholera, is a marine organism and coastal waters are important reservoirs of the organism. The objective of this project was to elucidate the ecology of the pathogenic V. cholerae strains, O1 and O139, and the relationship between the cholera outbreaks with environmental indices in the coastal regions of East Africa. Since an understanding of the social implications of, and coping strategies for cholera outbreaks at district and community levels are imperative for improved cholera prevention and control, these were also analyzed.

The study, applying interdisciplinary approach, was conducted in three coastal regions of Tanzania and one in Kenya, i.e., Pwani, Dar es Salaam and Tanga (Tanzania) and Kwale County (Coast Province in Kenya). Identification and
characterization of both isolated and uncultured V. cholerae were performed using standard microbiological and molecular, PCR based, techniques. Data on the number of cholera cases and mortality as well as meteorological parameters were obtained from national data bases. Environmental factors were determined using standard oceanographic methods, in addition to remote sensed data. Assessments of social and economic factors were conducted using a combination of participatory and a questionnaire surveys techniques. The institutions which participated in the study included: Department of Aquatic Science and Fisheries, Institute of Development Studies, Department of Molecular Biology and Biotechnology (University of Dar es Salaam); Muhimbili University of Health and Allied Sciences; Kenya Marine and Fisheries Research Institute; Scripps Institute of Oceanography (USA) and School of Life Sciences, Södertörns University (Sweden).

The findings of the study provide in situ evidence of the presence of the pathogenic V. cholerae O1 and O139 along the coast of East Africa. Furthermore, a number of V. cholerae non O1/O139 that carry the cholera toxic gene were identified. Coastal regions are more prone to cholera outbreaks than inland regions. It was evident that coping strategies are lagging behind knowledge and attitudes about cholera in coastal regions of Kenya and Tanzania. We postulate a complex combination of environmental and socio-economic factors to play a significant role in the outbreak and distribution of cholera in the area. Awareness of these links in cholera management will improve both prevention and control.
The effectiveness of community based organizations for managing coastal resources in the Western Indian Ocean

Throughout the Indo-Pacific region, communities are increasingly empowered with the ability and responsibility of working with national governments to make decisions about their marine resources. For example, in Kenya, recent Beach Management Unit legislation has authorized fisheries landing sites along the entire coast to enact by-laws that provide locally appropriate rules above and beyond national fisheries laws.

This region-wide movement toward collaborative management of marine resources (frequently called co-management) has resulted in part from the perceived failure of many top-down governance institutions. In some instances, co-management arrangements have been successful at conserving marine resources by developing locally appropriate rules to limit overexploitation. These examples have often prompted widespread replication by governments, conservation groups, and sometimes communities themselves. However, this replication is often done without a fundamental understanding of why co-management may be successful under some conditions but unsuccessful under others. Thus, a question of crucial importance to resource managers, stakeholders, and common property theorists alike is “what factors enable some of these institutions to succeed while others fail?” Two main elements have been found to influence the success or failure of common-property arrangements such as co-management: the design of the arrangement itself, and the socio-economic environment which the arrangement operates in.

Despite the critical economic importance of coral reefs to coastal communities in Australia and throughout the world, few studies have quantitatively examined relationships between design principles, socioeconomic conditions, and the success of the co-management institutions increasingly used to govern coral reefs. There has been little systematic effort to understand how both design principles and socioeconomic factors identified in case studies influence the success of co-management over broader spatial or social scales. Comparative studies can help us better understand these relationships by revealing broader patterns, such as whether there are thresholds of factors like population or poverty beyond which certain co-management arrangements become untenable. The aim of this project was to broaden our understanding of how socioeconomic conditions and design principles are related to the success (or failure) of co-managing coral reef resources over a broad geographic context.

This study gathered data on the effectiveness, external environments, and institutional design of 32 co-management institutions operating throughout Kenya, Tanzania, and Madagascar.

This project found that co-management is largely successful at benefiting livelihoods, achieving compliance, and maintaining fishery resources above the minimum level expected to achieve maximum sustainable yields. However, not all co-management sites are successful. Communities, donors, and managers can direct policy actions at five key areas to facilitate success:

i. Sustaining fisheries and marine ecosystems. There are, important trade-offs between the sustainable use goals regularly promoted through co-management and broader conservation objectives. Co-managed fisheries can maintain stocks at levels that may permit sustainable harvests, but are unlikely to promote some key ecosystem functions throughout the broader seascape. Meeting such ecosystem-based management goals will likely require a range of complementary policies, such as the establishment of protected area networks and enhanced protection of ecologically important species.

ii. Providing equitable benefits. Fisheries co-management can contribute to social inequity by creating opportunities for local elites to control resources. To ensure that co-management arrangements attain the levels of perceived equity and legitimacy necessary for long-term success, manag-
ers must find ways to deliver beneficial livelihood outcomes to the poor. This will require an equitable distribution of power and in some cases may involve poverty reduction strategies, such as the provision of micro-credit loans.

iii. Dampening drivers of overexploitation. The exploitation status of co-managed fisheries is strongly affected by access to markets and levels of dependence on marine resources. Strategies that address the complex linkages between ecosystems, local livelihoods, and market access will be critical for sustainable fisheries co-management.

iv. Building robust institutions and multi-scale governance. Institutional characteristics are strongly related to social, but not ecological, outcomes in the co-management of small-scale fisheries. Investments in multi-scale governance arrangements that network co-management organizations and foster key linkages with higher levels of social and political organization will be necessary to organize collective action for sustainability rather than short-term exploitation.

v. Fostering compliance. Compliance is lowest under territorial use rights that provide local resource users with exclusive rights to their fishing grounds. Where access to motorized boats for patrols is lacking, effectively implementing co-management may require additional support to strengthen monitoring and enforcement mechanisms. In addition to enforcement capacity, co-management compliance is also about creating conditions that are conducive to people CBO cooperating. Managers and donors can help build the legitimacy, social capital, and trust that foster cooperation by making targeted investments that lead toward transparent and deliberative co-management systems.
Small-scale, grow-out aquacultures of mud crabs *Scylla serrata* as a sustainable livelihood in East Africa

Small-scale, aquaculture of mud crabs is progressively developing as an alternative source of income for coastal communities in East Africa. In the last decades various NGOs have promoted crab-fattening in cages as the culture method. However, this aquaculture is dependent on collection of small adult crabs as seeds, and mangrove snails (*Terebralia puncticulata*) as feed, and it is unclear if it would be sustainable if expanded to larger scales. The goal of the present project was to assess if small-scale, grow-out culture of mud crabs, in which very small juvenile crabs are grown in ponds until they reach market size, has a better potential to develop into a sustainable alternative livelihood.

Using a multidisciplinary approach, parallel field studies and surveys were carried out in Tanzania and Kenya to assess opportunities and constraints of this activity from both an ecological and socio-economic context. The study involved six institutions: Department of Marine Ecology, University of Gothenburg (Sweden); Kenya Marine and Fisheries Research Institute (KMFRI)(Kenya); Department of Economics and Institute of Marine Sciences, University of Dar es Salaam (Tanzania); Mafia Island Marine Park (MIMP)(Tanzania) and Beier Institute and Stockholm Resilience Centre, Stockholm University (Sweden).

Overall, grow-out aquaculture of mud crabs shows a potential to develop into a profitable and sustainable livelihood in East Africa, but more work is needed before this can be demonstrated. We found few cultural or societal obstacles for developing small-scale crab farms, and several group were interested to participate, including women. However, theft, lack of funds for the initial investment, and low crab prices were considered major problems. Market analyses showed that prices for mud crabs were over 50% lower in Tanzania than in other East African countries, and indicate that most of the profit goes to middlemen and exporters. Ecological studies identified for the first time the nursery habitats for juvenile mud crabs in East Africa, enabling collection of high numbers of small seed-crabs with minimal environmental impact. Field experiments demonstrated that natural mortality was many times higher for small juveniles compared to larger crabs, suggesting that it is more sustainable to use small seed-crabs than large. Based on field data, models of natural mortality and growth in mud crabs were produced, which enabled assessment of sustainability and profitability of different aquaculture systems.

Growth and survival of crabs in fattening cultures were found to be lower than in nature. This activity is therefore less productive and...
sustainable than traditional fishing of crabs. In addition, cost-revenue analyses of crab-fattening demonstrated a very poor profitability when realistic labor costs were taken into account. Thus, crab fattening does not appear to constitute a sustainable or profitable alternative livelihood.

Cost-revenue analyses of grow-out aquacultures demonstrated a relatively good return of capital investment in Kenya, but difficulties to obtain a profit in Tanzania, due to the lower prices there. New markets and market-chains need to be developed for crab farmers to improve the prices and the profitability of the culture. Aquaculture studies showed that small juvenile crabs could survive and grow well in pond cultures, and grow fast also on alternative feed sources available in coastal communities that were not used for human consumption.

However, full-scale pond trials showed variable growth and high losses when crabs were larger, possibly related to theft. Thus, more work related to improving growth and survival in these pond systems is needed before this aquaculture could be recommended for coastal communities in East Africa. Analyses of the sustainability of grow-out mud crab farms demonstrated that both the availability of small seed-crabs and local sources of crab feed put clear limits on the maximum size of grow-out aquaculture farms in coastal communities, which need to be taken into account if these activities should be promoted.

**Coral reef ecosystem services in the WIO: Understanding how coastal communities connect to, and benefit from, the environment**

“Ecosystems provide a range of valued goods and services, both directly and indirectly, to the human and economic system. In the marine environment these range from the provision of food and raw materials to existence values of cultural and communal purposes.”

Ecosystem services refer to the benefits people get from nature. The millennium ecosystem assessment popularized this term, but essentially, it tries to capture the idea that our natural environment is important to us, for a whole range of reasons. Sometimes it is clear how and why our natural environment is important, for example the food and income we get from coral reef fishing. In these instances, when we make daily decisions, we are likely to take these benefits into consideration. However, often we are unaware or only partially aware of how our natural environment is important. For example:
the protection from storm surges our coral reefs provide to our coastal houses and communities; the knowledge we gain, or enjoyment we feel, from our interactions with nature, or, the ecological processes that maintain and keep our reefs healthy. Because these aspects of our natural environment are less obvious there is the risk that when we make decisions, as resource users, managers, or politicians, we won’t take these benefits into consideration and risk losing or damaging the ability of our natural environment to provide them.

In the Western Indian Ocean, there has yet to be a comprehensive valuation that attempts on multiple scales to address the true value of marine ecosystem services. In light of this WIOMSA through the MASMA program commissioned a research entitled: “An economic valuation of coral reef ecosystem services in the WIO to identify specific beneficiaries and the role of marine protected areas in ensuring that these services are sustained”.

Understanding the ways individuals connect to and value aspects of the marine environment helps us understand how people intend to behave. This important information is lacking in management decisions as resource users often behave in a manner unintended and unanticipated by managers and policy makers. Designing locally appropriate policies involves balancing the diversity of competing values with an understanding of the contextual characteristics that interact to affect behavior. Decision makers therefore need information on the values associated with an ecosystem as well as how these values relate to the social context they are set within.

The team of scientists, commissioned by WIOMSA, set out to first, conduct a review of the available literature to sum up our current state of knowledge regarding the valuation of ecosystem services to establish whether the form this information takes is capable of informing local and regional coral reef management. Second, with case studies and field work in multiple communities across four countries, Kenya, Tanzania, Madagascar and the Seychelles, conduct in depth micro-scale analysis to measure localized valuations of goods and services and explore the likely efficacy different management approaches.

Once completed, comprehensive valuation of marine ecosystems will be beneficial for a variety of policy, economic and conservation tools which will improve overall management, conservation and understanding of marine resources in the Western Indian Ocean.

**Research findings**

**How do we value our reefs?**

Supporting services - that underpin the continued provision of all other benefits we receive - are underrepresented in WIO valuation studies, while cultural (e.g. recreation) and provisioning (e.g. fishery) services, where clear markets exist, are overrepresented in both the number of studies conducted and values assigned.
All services measured are generally assessed using different methods meaning comparisons cannot be made across services.

The largest number of services flows to beneficiaries at a local scale, consequently the cumulative value of ecosystem services is largest at this scale. However, the average value of a single service appears greatest, when flowing to beneficiaries at a global scale, creating biases in ecosystem service assessments.

Inconsistencies in classification and definition, particularly concerning regulating and option services exist.

**Regional differences**

Fishery, Education and habitat values are generally the ecosystem services that are assigned the greatest value estimates. However significant differences exist in the values assigned to all ecosystem services across the four countries.

There were no trends in the marginal values attributable to management at the regional or country level, suggesting that although management may drive differences, the patterns in the way individuals connect to the environment are influences as much by social context and individual characteristics present in the communities where management has evolved.

**Recommendations**

Findings suggest that if regional managers are to base their decisions on current valuation studies, their choices are likely to result in unexpected and undesirable tradeoffs. There is a need for:

- New and standardized methods that adequately account for supporting services;
- Studies to consider multiple ecosystem services simultaneously and across scales;
- A greater interdisciplinary understanding of how and why ecosystem services contribute to human well-being, under differing social contexts.
- Further, our findings add an important dimension to the basic assumptions behind analyses of incentive based environmental policies.
- Analyses of incentive based approaches need to consider income effects or risk unexpected or even perverse policy outcomes.

Managers and scientists need to develop a better understanding the values people assign to aspects of the environment, however these values will be influenced by and relate to the local social context.
Research capacity building is at the core of the activities of WIOMSA. WIOMSA provides several opportunities for strengthening research capacity of researchers, particularly emerging scientists and students. This occurs from the stage of planning and implementation of research projects, to analyzing generated data and to the production of publications. The WIO-COMPAS Program in its 5th year of operation in 2011 has continued to steadily build the capacity of professionals charged with the management of MPAs in the region. WIOMSA and the Coastal Resources Center at the University of Rhode Island (CRC/URI), in partnership with regional organizations and national governments developed WIO-COMPAS, a first-in-the-world certification program for MPA professionals to be assessed on their skills and knowledge of MPA management.
STRENGTHENING RESEARCH CAPACITY

WIOMSA supports students pursuing MSc and PhD degree programmes by covering their field costs (through MARG grants or by the student being a participant in the approved MASMA projects); visits overseas for up to three months for data analysis and production of publications; and travel grants to attend conferences to present papers. MASMA Grantees meetings and writing workshops also provide a platform for emerging scientists to interact with their peers.

Postgraduate students supported

In 2011, at least 50 regional students were provided with travel grants to enable them to attend the Conference on Climate Change and the Seventh WIOMSA Symposium. A further twenty three MSc and PhD students were provided with MARG grants to attend conferences held in different parts of the world to present their research results as well as to visit overseas laboratories for data analysis.

Twelve PhD and twenty six MSc students registered at universities within and outside the region received partial support from the different climate change projects in which they were involved. MASMA funds have also been used to purchase equipment for some postgraduate students.

The 10th Annual MASMA Grantees Meeting

The scope and objectives of the MASMA Grantees meetings have been evolving over time. At the beginning, these meetings were used to mainly provide a platform for grantees to present the results of their work, and for the Programme Committee to review and evaluate the performance of the approved projects based on the scientific results generated, and also provide feedback on how the implementation of projects could be improved. In recent years these meetings have also allowed synergies to be explored between projects, joint dissemination of information, and finally for the joint development of follow-up projects.

The tenth MASMA Grantees meeting, held from the 21st to the 22nd October 2011, brought together twelve MASMA-funded projects focusing on various aspects of climate change. These projects, which are in different stages of implementation, are funded through a grant from Sida’s Special Climate Change Initiative. With the exception of the project on “Evaluating current responses and projecting the effects of climate change on WIO coral reefs ecosystems from historical environmental variability”, which was approved for funding in July 2011, the other eleven projects started their implementation in 2010. Seven PhD students representing different projects attended the Meeting.

Writing workshops

Writing workshops have become a common feature of most of the projects. They provided opportunities for brainstorming on key research findings, as well as for capacity building for emerging scientists in terms of approaches to data analysis, information synthesis and access, and the best methods for disseminating information and results.

Workshop on the Maputo Bay Ecosystem Book Initiative

The Maputo Bay Ecosystem is one of the three books which have been commissioned by WIOMSA to summarize the current status of knowledge on coastal and marine issues, with the intention of developing management and policy recommendations for the three sites. The other two sites are Gazi Bay in Kenya and Chwaka Bay in Zanzibar, Tanzania.

The Maputo Bay Ecosystem Book, which is writ-
The book is divided into five parts namely: Environmental Setting; Main Habitats and Ecological Functioning; Fisheries of Maputo Bay; Cross-cutting and Challenges, Gaps and Perspectives. Authors from Mozambique are from several departments of the University of Eduardo Mondlane including Biology, Physics, History, Economics, Geology, as well as the Engineering Faculty and the National History Museum, national entities such as CTV, Fisheries Research Institute (IIP); INAHINA and the National Institute of Statistics. Those from outside Mozambique are from South Africa, Norway, Portugal, Sweden and the USA.

The Getting into Print Workshop

WIOMSA in conjunction with the Australian Research Council (ARC) Centre of Excellence for Coral Reef Studies hosted a one-day workshop on getting into print on October 23, 2011. This workshop was directed at scientists interested in learning how to navigate the publication process.

The workshop was run by Dr. Joshua Cinner, who, used his considerable editorial, publishing, and reviewing experience to provide insights into how to structure manuscripts effectively and to navigate the sometimes daunting peer-review process. The workshop was attended by 25 participants in different career stages, from graduate students working on their first publication to more senior scientists who wanted some tips on getting their papers through peer-review.

WIOMSA sees supporting emerging scientists and students as an effective way of bolstering and maintaining regional research capacity.
2011 was a busy year for WIO-COMPAS. Two Assessment events were held resulting in 13 new MPA PROs being added to the ranks of Certified MPA Professionals to bring the Number of MPA PROs in the region to 37!

Level 2 Kenya:

A Third Level 2 Certification Assessment event, (L 203) designed for MPA Site Managers was held at North Coast Beach in Kikambala, Mombasa from the 14-17 June, 2011. Five candidates attended the event out of 7 applicants with 4 being certified as MPA PROs. These are Robin Adams from South Africa, Paul Sieben of Table Mountain MPA South Africa, Jairos Mahenge from Tanzania Coastal Management Program, in Tanzania and Isaac Mugo from Malindi Marine Park in Kenya.

Mafia Island Marine Park Hosts L 103

WIO-COMPAS teamed up with the Marine Parks and Reserves Unit in Tanzania to hold the 3rd Level 1 (L 103) certification event for Marine Field Operators in Mafia Island Marine Park (MIMP) in August 2011. The L103 offering attracted 16 applications. 9 candidates attended the certification event from Kenya and Tanzania and were all certified as MPA PROs at Level 1, a historic feat as this is the first time when all candidates have attained the mark for certification.

These were Ally Rashid Mgeni, Mohamed Shamte and Humphrey Mahudi all of MIMP; January Ndagala of Tanga Coelacanth Marine Park; Magreth Mchome of Dar es Salaam Marine Park.
Marine Reserve System, Abdikadir Adan of Mombasa Marine Park; Daniel Kaburi of Watamu Marine Park; Julius Ngeti of Kisite/Mpunguti Marine Park and Omari Dago of Malindi Marine Park. The Warden in Charge of MIMP, and also assessor for L103, George Msumi and the entire team at MIMP worked tirelessly to complete the MIMP Research Centre just in time for the L103 event, ensuring that the event was a success.

Improving the WIO-COMPAS Program

In 2011, WIOMSA and the Coastal Resources Center at URI, the certifying bodies for WIO-COMPAS contracted Qalanet Group, South Africa to review the assessment program and recommend improvements to assessment instruments and tools. Some of the recommendations from their report have already been fed into the program. For example the recommendation that field exercises/simulations should receive more focus as a practical demonstration of true competence of candidates in the field was followed through in Mafia in August 2011, when the L103 candidates conducted both a boat and beach patrol exercise.

Recommendations have also been taken into the development of the Level 3 component of the program where the case study has been dropped in favour of a more focused portfolio and a panel interview approach to assessment of competences. Qalanet was asked to look at the WIO-COMPAS Assessment model with a view to achieving greater national and international credibility and recognition for certification in the interests of professionalising the field of marine protection and the assessment model adapted by the program is one of the ways of ensuring that this credibility is maintained.

West Africa to Emulate MPA PRO program?

Mr. Alagie Manjang, the Assistant Director for the Department of Parks and Wildlife Management in the Gambia attended the L 203 Certification Assessment Event as an observer, to get an impression of the WIO-COMPAS Program approach to the professional development of MPA Managers, Field Staff and Policy Makers and to look at its possible applicability in the Gambia and West Africa as a whole.

Mr. Manjang was positively impressed by the assessment process, summing it up in a direct quote as follows, “The program of assessment is very well structured and it has no lapses and this ensures that the candidates are given adequate means of providing evidence on competences, making it a very worthwhile experience for the candidates. The assessment tools, particularly the portfolio gives candidate the opportunity to identify them in the institution, identify themselves within the overall effort of the MPA. It makes me almost envious that the program was not conceived in West Africa or the Gambia that the program was not conceived there to manage protected areas.”

Enhancing Assessor Credibility and Numbers:

WIO-COMPAS has been systematically increasing the pool of assessors in the region based on the program demands and the selection of assessors with on the ground operational experience and knowledge of the local and regional context of MPA management. Selected assessors have attended assessment events as observer learner assessors/assessors in training to get on the job training from the WIO-COMPAS lead assessor before taking on full event assessment responsibilities under the mentorship of an experienced assessor. Peter Chadwick (WWF, South Africa) and Arthur Tuda (KWS, Kenya) are now assessors at both Level 1 and 2, George Msumi (Mafia Island Marine Park, Tanzania) is a Level 1 assessor while Redfred Ngowo (Mnazi Bay/Ruvuma Estuary Marine Park, Tanzania) is a learner assessor for Level 1.

An official training of assessors is planned for early 2012 where the experience and status of the current crop of WIO-COMPAS assessors will be formalised, through improving their expertise in the theory and practice of assessment.

Looking at MPA PROs Online:

WIO-COMPAS completely revamped and updated the WIO-COMPAS website, which is now hosted on the WIOMSA website www.wiomsa.com. The new website gives prominence to MPA PROs with their photos and profiles taking prime position on the home page and a google map outlay of the Marine Protected Areas covered by WIO-COMPAS MPA PROs. Work is on going to upload Case Studies and Core Activity Documents on the site so that MPA PROs can share perspectives on management issues facing their MPAs.

Other changes on the site include the introduction of an Assessors’ Profile Page, acknowledgement of our partners and endorsers and French translations for most of the content of the website.

MPA PRO Newsletter

WIO-COMPAS initiated a quarterly MPA PRO email Newsletter in 2011. The purpose of the Newsletter is to provide a forum to keep MPA PROs communicating while informing them on what WIO-COMPAS is doing and keeping them abreast of what is happening in the MPA World. Two Issues of the Newsletter have been produced so far.
WIOMSA recognizes that successful linking of science to policy does not end only with the production of books, journals or papers containing policy-relevant information, but go further. Two additional steps are critical in increasing the chances of information being used for policy processes at national and regional levels. First, the production of policy briefs, which summarizes key scientific research results into actionable policy recommendations, and second the science-to-policy dialogues, which bring together scientists, senior decision-makers and other stakeholders to discuss issues of regional importance.
Policy Briefs:
In 2011, two policy briefs on benefit sharing mechanisms for Mozambique and South Africa were produced by the MASMA projects Sharing Benefits from the Coast: tourism and links to small-scale fisheries in Mozambique (by Maria Hauck, Rachel Wynberg and Mayra Pereira) and Sharing benefits from the Coast in South Africa (by Rachel Wynberg, Maria Hauck, Phillile Mbatha and Serge Raemaekers).

These briefs were the main background documents for the two feedback meetings organized in Mozambique and South Africa to report back to stakeholders on the projects’ findings and recommendations. These meetings were attended by relevant policy makers; local, provincial and national government officials; the private sector; and other key and relevant stakeholders.

The briefs were based on a three year research project conducted in Mozambique and South Africa to investigate the extent to which communities benefit from use of coastal resources; the mechanisms used to distribute benefits and the governance arrangements that enable or constrain the more equitable sharing of benefits from coastal resources. The briefs used participatory research methods including household surveys, focus groups discussions and key informant interviews.

The policy feedback meetings proved to be an excellent platform for different organizations who have an impact on communities, but normally work in isolation, to come together and discuss ways to improve benefit sharing.

Science to Policy interactions
In March 2011, WIOOMSA in collaboration with the Nairobi Convention organized a science to policy dialogue during the Regional Conference on Climate Change (“Climate Change Impacts, Adaptation and Mitigation in the WIO region: Solutions to the Crisis”, held in Mauritius), where senior government officials and scientists discussed current knowledge of impacts of climate change in the coastal and marine environment of the WIO region as well as actions taken by the governments of the region to address these impacts. The policy session which had senior policy- and decision-makers acting as panelists, brought a practical policy perspective discourse to the conference proceedings, an aspect that is so often missing in many scientific conferences. This discussion together with other presentations contributed to the development of a consensus statement of the Conference, which highlighted a number of pertinent climate change issues vital to the coastal and marine environment of the WIO region.
The WIOMSA Symposium, which is a key platform for sharing and exchange of information on marine science in the Region, has grown from humble beginnings with around 30 participants making presentations over two days in 1997, to the staggering 215 oral and 242 poster presentations, and an attendance of nearly 500 participants, at the 2011 event. This is testament to the importance that scientists, managers AND decision-makers place on this gathering. In addition to the scientific programme, many see this as the premier opportunity to network and interact with colleagues, peers and seniors.

The 7th WIOMSA Scientific Symposium returned to Mombasa, Kenya for the second time, 14 years after the first occasion in 1997. This 7th WIOMSA Symposium, held at the Sarova Whitesands Resort and Spa from the 24-29 October 2011, proved to be the most popular yet, with nearly 500 delegates attending. The increased size of the Symposium has also required different approaches to be adopted for its organisation, and the role of WIOMSA Country Coordinators, the Local Organising Committee, and other partners, in addition to that of the WIOMSA Secretariat, has become increasingly important. Preparation for the event began many months before October 2011, with local organisation being spearheaded by a committee headed by the Kenya Marine and Fisheries Research Institute (KMFRI).

The Symposium kicked off with a colourful opening ceremony that was attended by several dignitaries including the Honourable Amason Kingi, Minister of Fisheries Development in Kenya who was the chief guest; Prof. Micheni Ntiba, Permanent Secretary in the same Ministry; Dr. Johnson Kazungu, Director of KMFRI; Dr. Gity Behravan, First Secretary and Senior Research Advisor at the Embassy of Sweden, Nairobi and the representative of Sida; Dr Nirmal Shah, President of WIOMSA; Dr Julius Francis, Executive Secretary of WIOMSA; and Dr Jared Bosire, Chairman of the Local Organizing Committee. In addition, the conference was attended by the WIOMSA Board of Trustees as well as the MASMA Programme Scientific Committee, representatives of Inter-governmental and Non Governmental Organizations and National Research and Academic Institutions.

**Broad Scientific Program**

The guiding theme of the 7th symposium was “COPING WITH GLOBAL CHANGE”. This was intended to reflect the urgent need to address different processes that are causing changes in coastal and marine environment. As usual, this WIOMSA Symposium welcomed the participation of a very broad range of disciplines. This Symposium was quite special in this regard, as it allowed the multi-disciplinary and trans-disciplinary topics that fall under this theme to be presented in one forum, supporting strong linkages between the many disciplines in addressing some of the environmental challenges that we are faced with.
As could be expected many of the presentations this year focussed on issues surrounding resilience, vulnerability and adaptation to climate change in a variety of contexts and disciplines in the marine and coastal environment. Oral presentations ran in five parallel sessions with a whole afternoon being devoted exclusively as a poster session, where poster presenters had the opportunity to engage with other participants on their particular research areas. Six keynote presentations were delivered during the morning plenary sessions by leaders in a variety of disciplines, both from within and outside of the region.

While several of these focussed on climate change, others looked more generally at marine science development, ocean governance, and the valuation of coastal goods and services. Presentations were made by regional and international scientists and practitioners as well as a host of students, many of whom were able to attend the conference through benefiting from partial grants from WIOMSA. About 219 participants benefitted from WIOMSA travel grants to attend the symposium, 52 universities and 25 countries were present at the symposium.

Side Events

Side events have become an essential component of the WIOMSA symposium as they accord additional opportunities for peer to peer networking and for partners, programs and projects to showcase their work to the participants attending the symposium and for committees and ongoing regional initiatives to report back to their constituencies.

The inclusion of 10 Special sessions in the scientific program shows the importance that stakeholders place on this biannual event as a catalyst for bringing people together. The side events included workshops, special sessions, book launches and cocktails that were organized to coincide with the 7th Symposium and these greatly enriched the symposium program. These included: The Blue Ventures Locally Managed Marine Area (LMMA) event; the Blue Ventures Population, Health and Environment (PHE) event. The Assessments and reporting especially for the Regular Reporting Process, Africa Environment Outlook and the Regional and National State of Coast Reports for the United Nations, the Nairobi Convention and the governments of the Western Indian Ocean region event organized by UNEP, Nairobi Convention Secretariat, Division of Early Warning and Assessments (DEWA) and WIOMSA.

The East African Forum for Payment for Ecosystem Services and Mikoko Pamoja event on REDD & PES Perspective in the WIO. The Progressing dugong conservation in the South West Indian Ocean sub-region session that was convened by the Secretariat to the Memorandum of Understanding on the Conservation and Management of Dugongs and their Habitats throughout their Range (UNEP/ CMS Dugong MOU)’s. The Western Indian Ocean (WIO) Tuna Challenge organized by WWF Coastal East Africa Initiative, Indian Ocean Tuna Commission (IOTC) and WIOMSA. The Ecosystem values and coastal governance in a changing climate synthesis and gap analysis workshop organized by Christina Hicks and Caleb McClennen from James Cook University, Wildlife Conservation Society and WIOMSA.

The Marine Important Bird Areas session convened by Birdlife International, Birdlife South Africa and ECOMAR (University of Reunion); the Marine Turtle Management, Research and Task Force meeting organized by Western Indian Ocean Marine Turtle Task Force, Indian Ocean South East Asian Marine Turtle Memorandum of Understanding (IOSEA), a session on Managing the Intertidal zone organized by Linda Nordlund Mtwana and Martin Gullström; the Getting into Print Workshop organized by Joshua Cinner and WIOMSA. The Launch of the Adapting to a Changing Environment; Confronting the Consequences of Climate Change Book by Tim McClanahan and Joshua Cinner and the Launch of the Indian Ocean Community Conservation Handbooks and Comics for Coastal Conservation by Blue Ventures.

All in all, it is believed that this year’s Symposium lived up to the expectation that it provided the leading regional forum for communication and networking among marine scientists, managers and practitioners. In so doing the Symposium has contributed significantly in assisting WIOMSA to fulfill its ongoing mandate to promote the development of marine and coastal science professionals, advance marine and
coastal science and promote the conservation and sustainable development of the coastal and marine environment. The WIOMSA President sums this up best in his statement “When I am asked to describe WIOMSA’s achievements in one sentence I simply say this: “WIOMSA has built A Region of Marine Science”. By this I mean that while marine science has been on-going prior to WIOMSA, it was this association that systematically and strategically facilitated, and sometimes even pushed, scientists to collaborate across institutions, countries and disciplines. If we position these facts in the light of history we truly appreciate what a great achievement the WIOMSA Symposium is.

It has taken a long time for our sub region to be able to showcase its own marine science capability. And the WIOMSA Scientific Symposium has been the only continuous regional platform for presentation, discussion, partnering and discovery!”

Generous Sponsors List

The Symposium was sponsored by the Swedish International Development Agency (Sida); IOC/UNESCO, the Nairobi Convention, WWF Tanzania and Kenya Airways - Tanzania office. The Symposium was also supported by several Kenya-based organizations including the National Council of Science and Technology; South West Indian Ocean Fisheries Project (SWIOFP); National Bank of Kenya; Kenya Marine and Fisheries Research Institute (KMFRI); KMFRI-SACCOS; and Kenya Wildlife Services.

Others include: Kenya Maritime Authority, Wildlife Conservation Society, Tricepts Management Solutions, Sarova Group of Hotels, Tamarind Group, Milele Beach, Severin Sea Lodge, Spartan Football Club and Department of Fisheries. WIOMSA is very grateful to all the sponsors for their generous support.
ENHANCING ACCESS TO RELEVANT INFORMATION AND KNOWLEDGE

WIOMSA’s approach to information dissemination and communication includes the publication of books, peer-reviewed papers, newsletters, magazines, flyers and brochures and the production of CD-ROMS, DVDs, and TV programs designed to serve the needs of a wide range of audiences.

An independent review of the WIOMSA’s communication tools in 2011, concluded that these have significantly improved in recent years in terms of presentation, breadth and quality of content, and reach. Maintaining the same spirit, in 2011, WIOMSA on its own, and in collaboration with its partners or grantees, produced a range of high quality publications and awareness materials.

The WIOMSA Folder and Fact Sheets
Many visitors to WIOMSA’s offices or officers of the Country Coordinators or participants to different events organized by WIOMSA and/or its partners, have requested information materials in the form of brochures/flyers that summarize the Association’s portfolio of activities. To address this, WIOMSA, early in 2011, produced a folder with six factsheets each detailing one key activity of the Association. These are:

» Working for and with you for the coastal and marine environment of the WIO region
» Capacity and professional development – leading the way
» Climate Change Initiative – Taking an integrated approach
» Enhancing access to relevant knowledge and information
» Competitive research grants – An innovative approach towards bridging the gap between science and decision-making processes
» Outreach and Resource Mobilisation – A New Approach

Indian Ocean Community Conservation Handbooks and Comics for coastal conservation
The Indian Ocean Community Conservation Handbooks are a series of information booklets tackling a number of specific environmental themes. These handbooks are designed to act as a reference and decision support tool for community leaders and local government authorities, so that they are better equipped to manage their coastal resources. The booklets provide practical, hands-on information to enable more effective, informed resource management. The twelve booklets cover the following topics: Introduction to the Marine Environment: Problems and Possible Solution; WIO Marine Habitats; Destructive Fishing Gear; Local Conventions for Coastal Resources Management; Octopus Fishery Management and Coral Reefs in the World’s Oceans. Others are Seacucumber farming; Community-based Resource Monitoring; Sexual and Reproductive Health; Eco-tourism; Socio-economic monitoring and Marine Turtle Conservation. The booklets are in three languages, English, French and Malagasy and were developed by Blue Ventures.

Annual Report 2010
The 2010 Annual Report details the main achievements of WIOMSA in 2010 including information on the approved and completed MASMA and Climate Change projects in 2010. Other highlighted activities in the report include articles on how WIOMSA has used writing workshops to synthesize information from large multidisciplinary research and new projects funded by different partners. The report was received very well amongst members and partners with commendations on its content and structure as well as the valuable information on the region contained therein.

The WIOMSAMagazine
This 4th Issue of the WIOMSAMagazine tackles the issue of Climate Change in the Western Indian Ocean Region. The edition discusses knowledge, experience and solutions on impacts of climate change. It also looks at the experience of some the 11 Climate change projects supported by WIOMSA. The release of Issue 4 coincided with the Regional Conference on Climate Change organized by WIOMSA in Mauritius in March 2011 and was thus dedicated to climate change and the research and mitigation activities being undertaken by local and regional organizations in the WIO to address these threats.
A Field Guide to the Seashores of Eastern Africa and Western Indian Ocean Islands (Third Edition)
The third edition of the field guide includes over 1,650 species of plants and animals from all coastal habitats. It has 155 pages of watercolour illustrations and hundreds of detailed line drawings that facilitate identification of the marine life common to this region. 53 regional and international experts (including 10 new ones) have contributed precise descriptions of species and their habitats, together with an authoritative summary of the knowledge of each taxonomic group.

Second Edition of the Teachers Guide
The Second edition of “A School Teacher’s Guide to Marine Environmental Education in the Eastern African Region” is designed as a resource book for teachers that will bridge the gap between the existing school curriculums and the wealth of marine science now available and the link between coastal and marine resources and livelihoods and the impacts of human activities. This second edition contains three new chapters: Seagrasses (Chapter 5), Minerals, oil and gas (Chapter 7) and Climate change (Chapter 9).

Adapting to a Changing Environment; Confronting the Consequences of Climate Change
Published by Oxford University Press, the new book, which supported by WIOMSA through a MASMA grant, tackles the problem of climate change from an interdisciplinary perspective and provides the most detailed and holistic study to date on how climate change will impact the ecology and economy of people dependent on natural resources. It also develops a general framework applicable to other areas and social-ecological systems.

Mariculture in the WIO region - Challenges and Prospects
The book contains twenty-four brief chapters, which are categorized into five main parts, which are Introduction; Mariculture in East Africa - An Overview; Aquaculture and Sustainability-Sharing experiences, Facilitation Mechanisms and Success Stories and Discussions.

The Relationship Between Community-Based Organisations and the Effective Management of Coastal and Marine Resources in the WIO Region
This book summarizes the results of the MASMA-funded research project “the Relationship Between Community-Based Organisations and the Effective Management of Coastal and Marine Resources in the WIO Region”. The book discusses key concepts such as effectiveness, community, CBOs; CBOs within the institutional framework for Natural Resource Management; types of CBOs, and factors influencing CBO effectiveness.

Western Indian Ocean Journal of Marine Science, Volume 10 Issue 1
This consists of the following papers:


vi. Experimental Polyculture of Milkfish (Chanos chanos) and Mullet (Mugil cephalus) Using Earthen Ponds in Kenya - David O. Mirera


viii. Biomass and Abundance of Herbivorous Fishes on Coral Reefs off Andavadoaka, Western Madagascar - I. V. Vincent, C. M. Hincksman, I. R. Tibbetts and A. Harris

ix. Learning from the Past for Future Policy: Approaches to Time-series Catch Data Reconstruction - Dawit Tesfamichael and Daniel Pauly
No trespassing, mangrove replantation guards in a community project, Ulo, Macimboa District, Mozambique

© Jose Paula
WIOMSA’s long-term sustainability is dependent largely on diversifying sources of income, as well as the implementation of new and innovative approaches. This section discusses some of the approaches undertaken by WIOMSA aimed at laying a foundation for a long-term financial sustainability. The holistic nature of coastal and marine research and development requires a multifaceted approach involving collaboration, consensus and partnership and joint projects across different donors, actors and sectors. WIOMSA came to the swift recognition early on that the effectiveness and long-term sustainability of its activities relies on strong regional and international links. To this end, the Association has over the years proactively and strategically sought to align itself with strong partners in order to achieve its Vision.
One of the main challenges facing WIOMSA, and non-government organizations in general, is to ensure a sustainable financial future. In order to ensure its future sustainability, the Association in its Fourth WIOMSA General Assembly held in Reunion in August 2009, approved two key initiatives from the Resource Mobilization Strategy for further consideration. These were the setting up of a consulting function within WIOMSA and the establishment of an endowment fund. Both of these were seen as potentially significant elements of the strategy to build financial sustainability into the Association. They were also seen as being the sort of activity that is well suited to the operational setting and capability of WIOMSA as a whole.

In recognition of the fact that WIOMSA’s long-term sustainability is dependent largely on diversifying sources of income, as well as the implementation of new and innovative approaches, a dedicated Outreach and Resource Mobilisation post was established and Dr. Tim Andrew took up the position from March 2011. In its first year, this position and its activities has been funded by a special grant from Sida.

**Strategic Studies**

In 2011 WIOMSA undertook a number of strategic studies on different aspects, all of which directly or indirectly have provided useful information for further elaboration of the Outreach and Resource Mobilization activities. These are:

i. Initial Assessment of Outreach and Resource Mobilization. An initial assessment to determine the most appropriate approach to adopt to address the challenges faced with regards to long-term sustainability. This assessment clearly indicated that ensuring the financial sustainability of the organisation goes far beyond simply establishing a commercial arm with a separate cost centre that can use profits generated to support core activities. Rather, it is apparent that a multi-faceted approach which builds on current activities as well as explores new avenues for funding support needs to be adopted.

ii. Review of WIOMSA Communications Tools. This assessment provides a general overview of WIOMSA current communications tools and their (implicit) purposes,
summarizes related efforts and costs, and provides feedback on reader appreciation.

iii. Optimal Staffing Levels for the WIOMSA Secretariat. This looks at the optimal staffing levels for the WIOMSA Secretariat to provide quality, economic and efficient support for the core activities of the Association. It focuses on the staffing needs of the WIOMSA Secretariat in Zanzibar, while recognising that the wider activities the Association are delivered and supported through the activities of the Country coordinators, a strongly engaged WIOMSA President and Board, the Editor-in-Chief of the Western Indian Ocean Journal of Marine Science, and a wide range of regional and international partners. WIOMSA also employs consultants and contractors for short-term assignments on a needs basis.

iv. Exploring WIOMSA’s Niche in Capacity Building: Is there a Role for Fee-Paying Courses? This document brings together background information and analyses on WIOMSA’s niche in capacity building and addresses the question, is WIOMSA is a position to start organizing courses for fee-paying participants.

v. Establishment of an Endowment Fund: An experienced external consultant has completed an investigation of options for the establishment of an Endowment Fund and has recommended that WIOMSA establish a trust fund in the jurisdiction of Mauritius. This is in the process of being finalised and is regarded as a main thrust in the Association’s efforts to start covering the core running costs of the Secretariat through an ongoing and sustainable internal mechanism.

Provision of Technical Services – Resource Mobilization Activities

Besides conducting several assessments relevant to Outreach and Resource Mobilization, several technical service delivery activities have taken place in the past year:

» Agulhas and Somali Current Large Marine Ecosystem (ASCLME) Project has commissioned WIOMSA to coordinate the reviewing of the national Marine Ecosystem Diagnostic Analyses (MEDAs) that feeds into the Transboundary Diagnostic Analysis (TDA) and the Strategic Action Programme (SAP).

» WWF Tanzania Country Office commissioned WIOMSA to coordinate a team to prepare the Programme Document for Phase II of the Rufiji-Mafia-Kilwa Seascapes programme.

» USAID and NOAA contracted WIOMSA to assist with the preparation for, and implementation of, a workshop focusing on addressing Climate Change impacts on Marine Protected Areas in the region.

In 2011, WIOMSA received funds for a number of specific activities such as:

» The Regional Conference on “Climate Change Impacts, Adaptation and Mitigation in the WIO region: Solutions to the Crisis” - UNEP/Nairobi Convention Secretariat, Indian Ocean Commission (COI)/ACCLIMATE Project, Common Market for Eastern and Southern Africa (COMESA), the African Monitoring of the Environment for Sustainable Development (AMEDS), International Organization for Migration (IOM) and Air Mauritius.

» The Seventh WIOMSA Scientific Symposium - IOC/UNESCO, the Nairobi Convention, and WWF-CEI. The Symposium was also supported by several Kenya-based organizations including the National Council of Science and Technology, South West Indian Ocean Fisheries Project (SWIOFP); National Bank of Kenya; Kenya Marine and Fisheries Research Institute (KMFRI); KMFRI/SACCOS; and Kenya Wildlife Services. Others included: Kenya Maritime Authority, Wildlife Conservation Society, Tricepts Management Solutions, Sarova Group of Hotels, Tamarind Group, Milele Beach, Severin Sea Lodge, Kenya Airways, Spartan Football Club and Department of Fisheries.

» Level 2 Certification Assessment Event – WWF-SA and WWF-CEI

In the past year, at least six concept notes were developed and submitted to different funders, with most of them invited to develop full proposals. This indicates that there is adequate capacity at the Secretariat to respond in a timely manner to different calls for proposals.
WIOMSA has worked and will continue to work with a wide range of stakeholders and has in turn been increasingly sought out as a valuable partner whose work is highly appreciated and as a result the Association is well listened to in the region. WIOMSA was involved in a number of collaborative efforts in 2011, one of them being with Natura Ramboll on Integrated Sustainable Coastal Development (ISCD).

Coastal Managers Take Part in the Integrated Sustainable Coastal Development Program

25 participants attended the 2nd part of the ISCD program in Zanzibar from the 3-14 of October 2011. The Swedish International Development Cooperation Agency (Sida) offers, as part of its bilateral development assistance, advanced international training programmes of strategic importance to the social and economic development in the participants’ countries.

These programs are specially designed for persons qualified to participate in reform processes of strategic importance on different levels and who hold positions in their home organizations that have mandates to run processes of change. The program methodology is based on the assumption that participant countries want to carry out the changes and are thus willing to invest their own resources to achieve the changes. The long-term perspective for the program is that it will contribute to institutional strengthening and capacity development in the participants’ countries.

The training program is jointly run by Ramboll Natura AB in Sweden, the School of Global Studies at the University of Gothenburg and WIOMSA and it involved a 3 week stint in Sweden held in May-June 2011 followed by the 2 week session in Zanzibar. The first session of the program introduced participants to the development of their Change Projects (CP), a key component of the program whose purpose is to enable participants to link the learning from the programme to their own work context and to initiate and support processes of change in their home organization. Thus participants had to define, design and
develop their CP based on needs, tasks and responsibilities in their ordinary work and were assigned mentors to guide them through this process.

The second session in Zanzibar, covered a wide variety of topics including Regional Cooperation for ISCD (ongoing cooperation in East Africa, the Nairobi Convention); case studies for Integrated Coastal Management- the case of Bagamoyo; theories of poverty and the specific situation of coastal communities; a case study on challenges for integrated sustainable development that involved a field trip to 3 villages organized by the Ministry of Planning and Development in Zanzibar: a field trip to Menai Bay Conservation Area that covered several topics such as stakeholder participation, tourism, livelihoods and women’s role in alternative livelihoods; Methods for communication and information dissemination and communication strategies; ISCD in practice (the case of East Asia and other regions). Participants had an interactive seminar where they presented their change projects and how they related to ISCD. There were team building sessions and private mentor sessions where participants got one on one advice on their change projects.

It is expected that at the end of the programme each participant shall have an increased understanding of the importance and benefits of integrated sustainable coastal planning and management for socioeconomic development, with respect to environmental impact, poverty alleviation and equality; security and rights perspective; increased knowledge about the planning process for an integrated sustainable coastal development; increased knowledge about experiences, methods and tools for organizational change in general and within coastal zone management in particular; and extended international and national networks for working with coastal development.

The participants were selected through a vigorous process that involved a detailed application form and in depth interviews with project mentors carried out in participant countries. Participants were drawn from Cambodia, China, Indonesia, Kenya, Tanzania and Vietnam and included Senior Research Scientists, Officials from the Ministries of Environment, Planning, University Lecturers, Research Institutes and Non Governmental Organizations involved in Conservation and Coastal Management.
During WIOMSA Scientific Symposia, different awards are given which are designed to recognize individual scientists/researchers and practitioners for their track record of achievements; for outstanding photos in the symposium photo competition; for excellent oral and poster presentations in the student competition and for events organized to publicize the symposium. These awards inspire outstanding and emerging scientists and practitioners and cultivate a healthy competition for quality and excellence in the region. This chapter highlights all the awards that were presented to different winners during the Seventh WIOMSA Scientific Symposium.
In 2011, Dr. Nyawira Muthiga and Dr. Magnus Ngoile joined the ranks of scientists to receive the prestigious awards. The award program now encompasses 4 Honorary Members and 8 Fellow Members whose exceptional work in research and marine conservation identifies them as leaders in their fields. Honorary Membership is awarded to individuals who have rendered notable service to the development of marine science in the WIO region. Fellow Membership is awarded to the scientists with outstanding work or significant contribution to marine science research in the region. Fellow Membership and Honorary Membership are the highest awards conferred by WIOMSA. The selection of awardees for 2011 was done by a panel consisting of previous award recipients.

Last Year’s Awards Ceremony took place during the official opening cocktail of the 7th WIOMSA Scientific Symposium, held at the Whitesands Hotel in Mombasa on the 24th of October 2011. Dr. Ngoile was conferred Honorary Membership while Dr. Muthiga received Fellow Membership. On hand to present the awards to the worthy recipients was Dr. Gity Behravan, The Senior Research Advisor and First Secretary for Regional Research Cooperation for Sida and the Embassy of Sweden in Nairobi.

**Magnus Ngoile**

Dr. Ngoile, who is currently the Policy and Governance Coordinator, UNDP/GEF Agulhas Somali Currents Large Marine Ecosystems (ASCLME), is no stranger to WIOMSA having been central to the establishment of the association. He was the Association’s founding member, first President/Chairman and served on the WIOMSA Board of Trustees for several years. In 1999, he won the prestigious Pew Marine Conservation Award that he used to promote community based marine and coastal management in Kilwa District, Tanzania. He holds a PhD in Fisheries Science from the University of Aberdeen, Scotland, completed in 1987, an M.Sc. in Fisheries Science from Humboldt State University, Arcata, California, USA, completed in 1977 and a B.Sc. in Zoology & Botany from the University of Dar es Salaam, Tanzania completed in 1974.

He has served in various capacities in marine conservation at nation, regional and global levels, including: the Director of the Institute of Marine Sciences of the University of Dar es Salaam; the Coordinator of the IUCN Global Marine and Coastal Programme; the Director General Tanzania National Environment Management Council; and the Team Leader for the EEZ Governance Facilitation Team for the Marine and Coastal Management Environment (MACEMP). He has extensive experience in policy, governance and management issues related to marine and coastal resources and environment.

Dr. Ngoile initiated and promoted the development of the instruments for the establishment of marine parks and reserves for Tanzania including Mafia Island Marine Park and has played a key role in the development of the Tanzania Coastal and environmental policies and legislation. He coordinated the collection of base line marine and coastal data which assisted in the development of the Zanzibar Environmental Policy. He also assisted in the development of community based marine conservation projects. Dr. Ngoile developed a marine science capacity building for Tanzania through the support SAREC and later of Sida-SAREC; the support which continues to date. At a regional level, he played a key role in the development of marine sciences in Eastern Africa and capacity building through the support of Sida-SAREC.

Finally, Dr. Ngoile was central to the organization of the two regional ministerial conferences for the development of a regional approach to integrated coastal management (ICM) in Eastern Africa, opening a dialogue between the players in policy-planning-management-research for ICM.
Nyawira Muthiga

Dr. Muthiga holds a PhD from the University of Nairobi. She is the Director, Marine Program Keny a and Conservation Scientist at the Wildlife Conservation Society (WCS). She worked at Kenya Wildlife Service (KWS) from 1999-2003 as the Head of Coastal and Wetland Program and working her final year there as Assistant Director, Coast Conservation Area. Dr. Muthiga is the longest serving President of the Board of Trustees of WIOMSA, having served in that capacity from 2000 to 2009. During her tenure, she presided over the Association’s rapid growth, overseeing the development of a new strategy for WIOMSA and the Association’s Resource Mobilization Strategy. She was involved in the strengthening of WIOMSA country chapters and networks, and improved information dissemination and management training activities.

She has served on the boards of various marine conservation and research bodies such as Kenya Marine Fisheries Research Institute, Kenya Maritime Authority and World Fish Center. She is a member of the Synthesis Panel of the GEF/WB Coral Reef Targeted Research and Capacity Building for Management Project; the Regional Coordinator since 2007 World Commission on Protected Areas (WC PA) – Marine, a member of the working group of the National Center for Ecological Analysis and Synthesis (NCEAS) of the University of Santa Barbara; the Chairman, Kenya Sea Turtle Conservation Committee (KESCOM); member and Chair of the Coral Reef Task Force, the Kenya representative since 1996, to International Coral Reef Initiative (ICRI) and a member of the Global Coral Reef Monitoring Network (GCRMN) Scientific and Technical committee.

Dr. Muthiga has contributed immensely to the development and conservation of Marine Science in the region. She has improved the management of MPAs through the development of management plans, and awareness and training programs at KWS. She has contributed to the strengthening of MPA management skills in the region through various roles including contributing to a regional Manual for MPA managers and a Guide for MPA Management in the Western Indian Ocean produced by WIOMSA. Through KESCOM, Nyawira has contributed to strengthening community based conservation organizations. As Chair of the Coral Reef Task Force of the Nairobi Convention, she oversaw the development of a regional strategy for the management of coral reefs focusing on climate change mitigation. She coordinated with WIOMSA and KESCOM a regional workshop that culminated in the establishment of the Marine Turtle Task Force of the WIO under the umbrella of the Nairobi Convention and the Indian Ocean South East Asian MOU for marine turtle conservation.

She has authored and co-authored more than 40 scientific articles, books and book chapters and has supervised several local and foreign

Award Winners: Dr. Magnus Ngoile, and Dr. Nyawira Muthiga with Gity Behravan (Sida) and Julius Francis (WIOMSA)
The 7th WIOMSA Scientific Symposium photo contest mirrored the symposium theme of “Dealing With Global Change”. The purpose of the contest was to demonstrate the impacts of global change at different levels and how actions are contributing towards coping with global change at a local or national level. 55 entries were received for the competition from which 21 photos were selected to be exhibited during the symposium from which symposium participants voted for their favourites.

In a closely contested vote, Ms. Anne Lemahieu of IRD La Reunion, and Milton Adera, of KMFRI won joint first place while Daudi Msangameno was declared third.

Ms. Lemahieu took home the third Kenya Airways prize of the night, a return ticket to Johannesburg, Mr. Adera won a night for two at Sarova Whitesands Spa and Resort and Dr. Msangameno won dinner at the Tamarind Dhow. They also received certificates and the 3rd Edition of the Field Guide to the Sea Shores of Eastern Africa and the Western Indian Ocean.

All the symposium competition winners were awarded prizes during the official closing ceremony of the symposium held at the Fort Jesus. The ceremony was presided over by the chief guest the Director General of Kenya Maritime Authority, Mrs. Nancy Karigithu.

The school art competition in particular was quite unique in the sense that it involved special schools and was taken very seriously by participants and the judging panel alike. Following the event, the judges made various recommendations such as having a longer period to enable students to participate in the competition.
2011 Student Competition Winners

MSc and PhD students...

Since the 5th WIOMSA Scientific Symposium, student competitions have been organized to provide motivation, encouragement and most of all recognition to the most promising scientists and upcoming researchers from the region and beyond. More than 40 submissions from MSc and PhD students were received for the oral and poster competition in 2011. The contest for both oral and poster competitions were very competitive with high quality submissions. 14 winners were named, 10 in the oral competition and 4 in the poster competition.

The selection of winners was done by the symposium scientific committee. The overall winner in the student oral competition was Hampus Eriksson from the Department of Systems Ecology, Stockholm University for his presentation on Scales, Mobility and Learning: A Regional Perspective on the Management of Sea Cucumber Fisheries. Hampus won a return ticket to Seychelles from Kenya Airways and a book on Marine Science from the University of Nairobi. First place in the student poster competition went to Mathieu Séré of Oceanographic Research Institute, Durban, Agence pour la Recherche et la Valorisation Marine (ARVAM) and the IRD Centre, La Réunion, for his poster entitled Identification and spatio-temporal patterns of coral diseases on Reunion Island Coral Reefs. Mathieu won a return ticket to Maputo from Kenya Airways. 2nd place went to Nosiphiwo Njokweni while 3rd place was won jointly by Wayne Braazier and Njaratiana Rabearsiao.

Other winners in the daily oral competition were Karen Chong Seng, Melissa Kay Boonzaaier, Ahintansoa Zaliah Jean, Jude Bijoux, Linda Harris, Philie Mbatha, Mayra Pereira, Phanor Montoya Maya and Christina Hicks. Other poster competition winners were Nosiphiwo Springok Njokweni, Wayne Braazier and Njaratiana Rabearsiao.

Pre-symposium Competition Winners

In the lead up to the Seventh WIOMSA Scientific Symposium, two special events, the school art and boat competitions, were organized by the Local Organizing Committee of the symposium. These activities were arranged with the intention of engaging the wider community in the events, as a way to raise awareness on the coastal and marine environment and the threats that it faces as well as raise the visibility and profile of the symposium and to ensure that the event was publicized outside the scientific circles.

The School art competition, undertaken in partnership with the Wildlife Clubs of Kenya (WCK), ran from 1st – 13th October 2011 and targeted upper and lower primary school students from 33 schools in Mombasa, Kilifi, Kwale and Malindi Districts in Kenya. 34 entries were received for the competition; 10 entries from lower primary, 15 entries from upper primary and 9 entries from one special school which combined both upper and lower primary. The theme for the art competition was “coping with global change” which was simplified to upper and lower primary. The contest for both oral and poster competitions were very competitive with high quality submissions. 14 winners were named, 10 in the oral competition and 4 in the poster competition.

Other winners in the daily oral competition were Karen Chong Seng, Melissa Kay Boonzaaier, Ahintansoa Zaliah Jean, Jude Bijoux, Linda Harris, Philie Mbatha, Mayra Pereira, Phanor Montoya Maya and Christina Hicks. Other poster competition winners were Nosiphiwo Springok Njokweni, Wayne Braazier and Njaratiana Rabearsiao.

The Boat Competition held at the Jomo Kenyatta Public Beach on the 16th October 2011. This event brought together fishermen from the Beach Management Units (BMU) in the area surrounding the public beach, a short distance away from the Symposium venue. The fishermen paired up and competed using their local fishing canoes. The event was publicized by way of banners on the public beach and sensitization of the fishermen through the Fisheries Department and Kenya Wildlife Service. The event attracted 26 participants, all of whom were provided with T-shirts and reflector jackets courtesy of the KMFRI Cooperative Society (KMFRI SACCO). The Winners were Fondo Gona and Coskaen Karisa Masha. Position 2: Mwalungu Mweru Muzi and Riziki Kazungu Karisa; Position 3: Michael Fondo Gona and Coskaen Karisa Masha. The winning teams were given cash prizes and certificates of participation.

The interest in this event was very high and the BMU representatives requested the organizers to consider hosting similar boat competitions annually. This is highly positive as it will serve as a great opportunity of disseminating scientific information on the conservation and management of coastal
Fishermen setting off into the sea, with a storm in the horizon
© A. Rasolohery.
MEMBERS CORNER

The Members corner was introduced to the Annual Report in 2009 to highlight the activities and Achievements of paid WIOMSA Members over the year in question. In this edition we cover New Institutional Members for 2011, awards, appointments and an obituary. WIOMSA congratulates all award winners and new appointees.
New Institutional Members For 2011

The number of WIOMSA Institutional Members is slowly but steadily growing. Since the initiation of the paid membership program, the number of paid members has been slow to grow while membership is one of the keys to the Association’s sustainability. In 2010, a new fee structure for Institutional Membership was passed by the Board of Trustees to encourage regional institutions to pay memberships fees. In this structure membership fees are paid according to the number of registered members in the Institution- with less than members or less paying US $ 500, between 10-20 members paying US $ 1000 and over 20 members paying US $ 1500. WIOMSA was pleased to welcome 2 new institutional members in 2011- Seychelles National Parks Authority and the State University of Zanzibar.

Nature Seychelles Wins Innovation Prize

The World Leisure Organisation (WLO) awarded the 2011 International Innovation Prize to Nature Seychelles. The prize was given for innovative efforts to use the environment for “edutainment” programs at the Sanctuary at Roche Caiman (SARC). At a glittering ceremony in Hangzhou, China on 18 November, alongside two other winners, Dr. Nirmal Shah Nature Seychelles’ Chief Executive and the President of WIOMSA received the prize called ‘George’, a beautifully crafted trophy named in honour of Dr George Torkildsen (1934 – 2005) the first WLO Prize Committee Chair and past World Leisure Organization Board Chair.

The WLO prize recognises organisations that have implemented creative solutions to foster local, national, or international leisure opportunities for the benefit and development of individuals and communities. Leisure includes play, recreation, the arts and culture, sports, festivals and celebrations, health and fitness, or travel and tourism. Activities at SARC are targeted at improving participant well-being by nurturing and harnessing the power of nature. Speaking during the ceremony, Dr. Shah said the award was a recognition of the innovative work that Nature Seychelles has done in getting people to value nature by linking nature to people’s physical and mental well being. It’s wonderful that a leading international organization has recognized this innovation. Nature Seychelles is an Institutional Member of WIOMSA

WIOMSA Board Member Honoured on International Women’s Day and the Year of Overseas Territories

Dr. Pascale Chabanet, a member of the WIOMSA Board of Trustees and a Researcher at the IRD in La Reunion was honoured by Marie- Luce Penchard, the Minister in charge of Overseas Territories, in Paris on the 8th of March 2011 on the occasion of the celebration of International Women’s Day. Pascale, was selected for the award by the Prefect of TAAF (Terres Australes et Antarctiques Françaises- French Southern and Antarctic Islands). Pascale was amongst outstanding women from all the overseas and ultramarine territories, who work to promote the dignity of women, to receive the award in recognition of her work not only in science but in communication and the raise of awareness on the islands.

WIOMSA Fellow and KMFRI Researcher Receives State Award

Dr James Gitundu Kairo received the Kenya National Award of Moran of the Order of the Burning Spear (MBS) from Kenya’s Head of State, President Mwai Kibaki. The order of the Moran of the Order of the Burning Spear award was instituted by the Government of Kenya after independence and is one of the highest civilian service awards granted by the President. Dr. Kairo, a WIOMSA Fellow Membership Awardee won the MBE in recognition of his outstanding performance and distinguished services related to coastal and marine research in Kenya, the western Indian Ocean region and internationally.
Award Winner Counts
Fish From Space

Dr. Nick Graham of the ARC Centre of Excellence for Coral Reef Studies and James Cook University was the 2011 laureate in the Life Sciences & Biological Sciences category of the Scopus Young Researcher of the Year Awards. Dr. Graham, an Associate Member of WIOSSA, studied fish from outer space in order to help predict the future of our coral reefs and their fish stocks to win the prestigious science prize. The Scopus Awards are presented annually by Universities Australia, the international science publisher Elsevier and the Scopus scientific citation index, and reflect in part how widely a researcher’s work influences other scientists. Nick’s work has helped several countries to better plan their management of coral reefs and fish stocks. He has been consulted on national marine policy decisions, and is co-author of influential policy reports.

WIO Scientist Receives
Presidential Award

Dr. Mitra Bhikajee, was conferred the national award of Commander of the Star and Key (CSK) of the Indian Ocean by the President of the Republic of Mauritius, Rt. Hon. Sir Anerood Jugnauth, for his contribution in the field of oceanography, early in 2011. Dr. Bhikajee is presently the Deputy Executive Secretary of the Intergovernmental Oceanographic Commission (IOC) of United Nations Educational, Scientific and Cultural Organization (UNESCO). The award was given to Dr. Bhikajee in recog-

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nition of his long standing effort in developing oceanography in Mauritius and in the region. Prior to joining the IOC, he was the Director of the Mauritius Oceanography. Dr. Bhikajee’s wife, Mrs. Surekha Bhikajee and daughter Snehaa accepted the award on his behalf.

New Deputy Executive Secretary IOC – Mr Mitrasen Bhikajee

The former Vice President of WIOMSA and the Director of the Mauritius Oceanography Institute (MOI), Dr Mitrasen Bhikajee, was appointed the Deputy Executive Secretary of the Intergovernmental Oceanographic Commission of UNESCO with effect from 1 April 2011. Prior to his appointment, Dr. Bhikajee was Director of the Mauritius Oceanography Institute. He served as Vice President of WIOMSA (2005 – 2007) and as the first Chairman of the regional Forum of Heads of Academic and Research Institutions (FARI). He recorded another “first” when he helped organize the first WIOMSA Scientific Symposium in the island states, which was held in Mauritius in 2005.

New Director for ECOMAR

Prof. Mathieu Le Corre was appointed the Director of the Laboratory of Marine Ecology (ECOMAR), of the University of Reunion in October 2011. Prof. Le Corre, who served as the WIOMSA Country Coordinator for La Réunion from the year 2002-2009, replaced Prof. Henrich Bruggeman who served in that position for 8 years, following Emeritus Professor Chantal Conand’s retirement in 2003.

FARI Member and University Don Promoted to Deputy Vice chancellor

In January 2011, The University of Nairobi (UoN) Council appointed Prof. Lucy Wachuhi Irungu as Deputy Vice Chancellor for Research Production and Extension (DVC-RPE). Prof. Irungu becomes the second woman in the history of the University to hold the position of DVC. UoN is among the universities affiliated to the Forum for Heads of Academic and Research Institutions (FARI) – an autonomous network run by UNEP and WIOMSA that brings together research and academic institutions as well as NGOs involved in the region’s coastal and marine research. The Forum is credited with enhancing visibility of these institutions and improving information sharing amongst the staff. Prof. Irungu has been among the most committed members of FARI and has attended all the important meetings and ensured full participation of UoN in the activities of Forum.

In Memory of Prof. Johann Lutjeharms

The Marine Science Community in the region mourned the loss of one of Southern Africa’s leading marine scientists and the foremost Authority on the Agulhas Current following his death in June 2011 after a battle with cancer for 10 years. Prof. Lutjeharms, the 2008 recipient of the Individual Over a Lifetime Award from the National Science and Technology Forum of South Africa was at the time of his demise working at the Department of Oceanography at the University of Cape Town.

He is remembered and honoured for his academic passion, his prodigious contributions to peer-reviewed scientific literature, the scores of international awards and other honours he received, as well as for his modesty and the support he provided to young researchers and students. Among the many accolades he received was the Order of Mapungubwe (Silver), the country’s highest national honour, presented to him by President Jacob Zuma in 2010 for his outstanding contributions and achievements in Oceanographic Science. In addition, he was one of only three UCT academics to have won all three of the university’s main forms of recognition for academics: the UCT Fellowship, the Distinguished Teacher Award, and its Book Prize/ Meritorious Publication Award.

Lutjeharms is survived by his wife, Ronel, and their children Maria and Wilhelm.
Participants of the Experts Workshop on draft Regional Strategy for Climate Change Implications in the WIO region, Feb 2011

Opening Ceremony, Climate Change Impacts, Adaptation and Mitigation in the Western Indian Ocean (WIO) region: Solutions to the Crisis (Climate Change Symposium), March 2011

Kenyan Permanent Secretary in the Ministry of Environment and Mineral Resources, Ali Mohamed and Permanent Secretary, Ministry of Fisheries Development, Prof. Micheni Ntiba, Climate Change Symposium

Brice MONTFRAIX, the head of the COI ACCLIMATE Project Announces Photo Competition Winners, Climate Change Symposium

The Representative of Air France the photo competition winner with a return ticket to France, Climate Change Symposium

Matt Richmond Launching the 3rd Edition of the Field Guide, Climate Change Symposium
DIARY OF THE YEAR

Sharing Benefits from the Coast: Community feedback meeting in Mbonambi, South Africa, June 2011.


The WIOMSA President presents a farewell gift to the outgoing Sida Representative, Dr. Claes Kjellstrom, August 2011.

Sharing Benefits from the Coast Community Feedback in Inhambane, Mozambique, June 2011.

The Maputo Bay Ecosystem Book Initiative Workshop, July 2011.


L 103 Certification Event- Candidates and Assessors in a group Photo, Mafia, August 2011.
DIARY OF THE YEAR

ISCD Participants, PWANI Project Representatives visit pearl farmers and jewellery makers in Bweleo, Zanzibar, October 2011

Hampus Eriksson, overall Student Competition Winner, WIOMSA Symposium

Pre-Symposium Boat Rowing Competition, Mombasa, October 2011

Snehaa Bhikajee, Veena Ramgoamlam, Mauritius Prime Minister Dr. Navinran-dra Ramgoamlam, Dr. Surekha Bhikajee, the President of the Republic Sir Anerood Jugnauth and Lady Sarojini Jugnauth celebrate Dr. Bhikajee’s award

Opening Ceremony of the 7th WIOMSA Scientific Symposium, October 2011

Nirmal Shah, CEO Nature Seychelles accepts the “George Award”, November 2011

A Cross Section of participants, WIOMSA Symposium

Group Photo, Dynamic Shorelines in a Changing Climate: WIO Perspectives and Updates, November 2011, Maputo, Mozambique
WESTERN INDIAN OCEAN MARINE SCIENCE ASSOCIATION
CONSOLIDATED STATEMENT OF RECEIPT AND PAYMENTS
For the period ended 31/12/2011

<table>
<thead>
<tr>
<th>Note</th>
<th>Description</th>
<th>2011</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>US$</td>
<td>US$</td>
</tr>
<tr>
<td>1</td>
<td>Balance b/f</td>
<td>2,152,639.76</td>
<td>2,119,654.58</td>
</tr>
<tr>
<td>2</td>
<td>Add Income received</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Other Income</td>
<td>554,362.20</td>
<td>330,404.52</td>
</tr>
<tr>
<td></td>
<td>Interest Income</td>
<td>1,644.01</td>
<td>2,197.00</td>
</tr>
<tr>
<td>4</td>
<td>Masma Income</td>
<td>1,864,554.25</td>
<td>2,343,421.00</td>
</tr>
<tr>
<td>5</td>
<td>Total Amount Available</td>
<td>4,573,200.22</td>
<td>4,795,677.10</td>
</tr>
</tbody>
</table>

Less Payments

| 6    | Masma Payments                      | 2,284,792.45 | 2,225,126.00 |
| 7    | Other Payments                      | 447,479.42   | 446,915.35   |
| 8    | Total payments                      | 2,732,271.87 | 2,672,041.35 |

Excess of receipt over payments

| 9    |                                    | 1,840,928.35 | 2,123,635.75 |

Add back Amount transferred to capital and Trust funds

| 10   |                                    | 15,775      | 29,004.01    |

Net excess of receipt over payments

| 11   |                                    | 1,856,703.54 | 2,152,639.76 |

NOTES TO THE FINANCIAL STATEMENTS
For the year ended 31st December 2011

PRINCIPAL ACCOUNTING POLICIES
This Financial Statement has been prepared based on the following policies

1) BASIS OF ACCOUNTING
   i) Transactions are recorded on cash basis i.e. Income and expenditure are recognized when is received or paid respectively.
   ii) Financial statement is prepared on the historical cost basis of accounting and records are kept on historical cost.

2) DEPRECIATION
   All purchases except purchase of fixed assets are expensed during the period of procurement.

3) FOREIGN EXCHANGE TRANSLATION
   Transactions denominated in other currencies are recorded and reported into the reporting currency at the rate ruling on the transaction date and closing balances at the closing rate.
WESTERN INDIAN OCEAN MARINE SCIENCE ASSOCIATION  
CONSOLIDATED BALANCE SHEET  
as at 31st December 2011

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>NOTE</th>
<th>2011 US$</th>
<th>2010 US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>315,267.90</td>
<td>315,267.90</td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>5,000.00</td>
<td>5,000.00</td>
<td></td>
</tr>
<tr>
<td>Cash and Bank</td>
<td>1,856,703.54</td>
<td>2,152,639.76</td>
<td></td>
</tr>
<tr>
<td>Advance Payments</td>
<td>75,775.55</td>
<td>50,297.66</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,252,746.99</strong></td>
<td><strong>2,523,205.32</strong></td>
<td></td>
</tr>
</tbody>
</table>

Less Projects balances  1,841,058.73  2,190,259.06

**Total net Assets**  411,688.26  332,946.26

Financed by

| Accumulated Funds       | 332,978.95  | 270,012.14 |
| Trust Fund              | 78,709.31   | 62,934.12  |
| **TOTAL**               | **411,688.26** | **332,946.26** |

4) ADVANCE PAYMENTS.  
This constitutes of overdrawn projects of which its subsequent or final tranches are expected soon.

5) PROJECT BALANCES.  
This constitutes of ongoing projects/activities with cash balances in our bank accounts

SOURCES OF FUNDS

WIOMSA is mainly funded by SIDA under MASMA program; other donors normally contribute or finance specific activity(s) and lasts when the financed project or activity is completed. Other sources include sale of WIOMSA products such as journals, membership fees and registration fees from WIOMSA Symposium.
WIOMSA’s Vision

By 2020, WIOMSA will be widely recognized as a leader in promoting the development of marine and coastal science professionals, advancing marine and coastal science and promoting the conservation and sustainable development of coastal and marine environment.

WIOMSA ORGANISATIONAL STRUCTURE

General Assembly
   ↓
Board of Trustees
   ↓
Secretariat
       ↓
Capacity Building
          ↓
Capacity Building for ICM
          ↓
Others

Scientific Research
          ↓
Others

Communication/Extension
          ↓
Information Technology
          ↓
Demos/Extension

Marine Science for Management
          ↓
Others
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University of Queensland  
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NORWAY

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About WIOMSA
Western Indian Ocean Marine Sciences Association promotes the educational, scientific and technological development of all aspects of marine sciences throughout the Western Indian Ocean region with a view towards sustaining the use and conservation of its marine resources.

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