



WIOSAP

Implementation of the Strategic Action Programme (SAP) for the protection of the Western Indian Ocean (WIO) from land-based sources and activities

DEMONSTRATION PROJECTS UPDATES - NOV 2023



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Objective:

The WIOSAP project aims to reduce impacts from land-based sources and activities and sustainably manage critical coastal-riverine ecosystems through the implementation of the WIO-SAP priorities with the support of partnerships at national and regional levels.



Components:

The Project has four components namely: Sustainable management of critical habitats; Improved water quality; Sustainable management of river flows; and Governance and regional collaboration.

COMOROS



Sustainable management of shallow marine habitats in the Comoros through improved management planning and rehabilitation of degraded sites

Direction Générale de l'Environnement et des Forêts (DGEF)

This project aims to strengthen the management of critical shallow marine habitats in Comoros. To date, the project has enabled the development of management plans for four Marine Protected Areas (MPAs) in the Comoros. These plans are awaiting national validation.





Enhancing stakeholder capacity on use of ICZM as a tool for conservation of the coastal and marine environment through a demo ICZM Project in Malindi –Sabaki Estuary Area, Kenya

Nature Kenya, and the National Environment Management Authority

This project seeks to enhance stakeholder capacity for Integrated Coastal Zone Management (ICZM) in the Sabaki river estuary, focusing on sustainable mangrove and fisheries management, community empowerment, and improved waste management. A dedicated mangrove nursery has been established at the Sabaki Estuary containing 30,000 potted seedlings from five different species. This project has attained significant achievement of planting 20,000 mangroves. The project is currently engaged in the ongoing development of a management plan for the Sabaki Estuary.

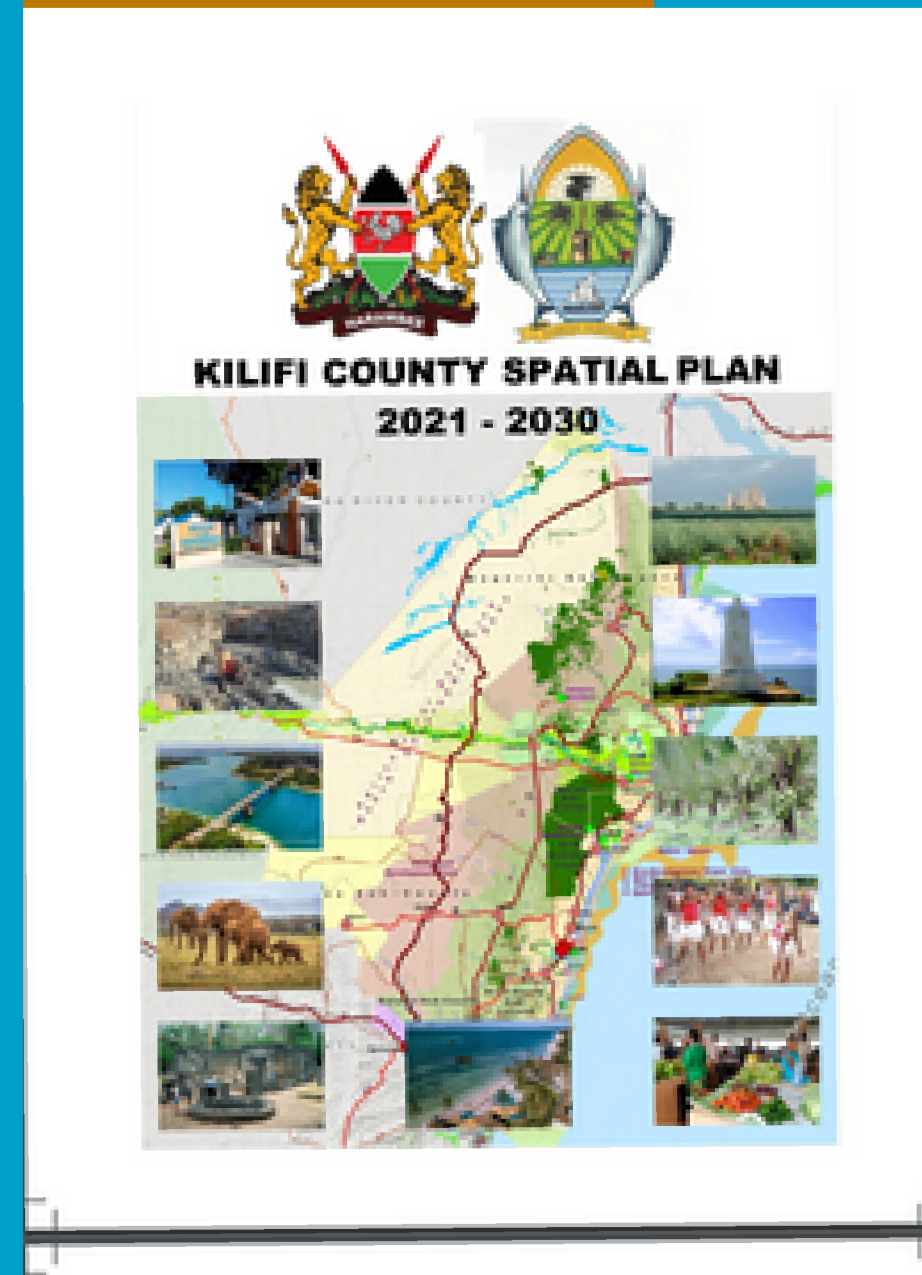




Towards integrated spatial planning for sustainable management of coastal and marine resources in Kilifi County, Kenya

World Wide Fund – WWF

The aim of this project is to ensure that the Kilifi County Spatial Plan is effectively implemented for sustainable management of coastal and marine resources and enhance socio-economic development. To date, the project has facilitated the completion and launch of the Kilifi County Spatial Plan which incorporates the marine component in a fast-developing Kilifi County. Additionally, a Geographic information system lab has been established and equipped with the aim of capturing, storing, and displaying the geographic areas of Kilifi County to assist in the implementation of the spatial plan.





Improving Mtwapa Creek water quality by use of Constructed Wetland Wastewater Treatment technology in Shimo la Tewa

Kenya Marine and Fisheries Research Institute – KMFRI

The aim of this project is to improve water quality in Mtwapa Creek by addressing wastewater management in Shimo la Tewa Prison, a major source of pollution into creek. To date, this project has facilitated the construction of an artificial wetland at the Shimo la Tewa Prison in Kenya to completion. This wetland is a nature-based solution for addressing the sewage disposal challenge in Shimo La Tewa prison; no more raw sewage is dumped into the sea, but rather clean water which will be recycled within the prison for irrigational food production.





Strengthening regulatory framework and national capacity for monitoring effluent discharges, water, and sediments quality in coastal and marine areas of Madagascar

Ministry of Environment and Sustainable Development, Madagascar (MEDD)

This project aims to enhance water quality and the health of marine and coastal ecosystems near Betsiboka River estuary, including Bombetoka Bay, impacted by land-based activities. To date, the project has conducted meticulous data collection and literature review involving national and regional stakeholders across diverse sectors encompassing livestock, agriculture, fishing, forests, mines, water, and sanitation. Additionally, national and regional workshops have been conducted under this project. The project has also supported the development of a decision support tool for adoption in water quality improvement.



Developing Collaborative Strategies for Sustainable Management of Mangroves in the Boeny Region Littorale

Ministry of Environment and Sustainable Development, Madagascar (MEDD)

This project aims to sustainably manage Boeny's mangroves for long-term health and ecological integrity using an integrated approach. Through this project, 200 local community partners have been engaged in monitoring efforts. The project has also forged a partnership with a women's cooperative that is involved in income-generating activities including goat and sheep breeding, as well as corn and cassava farming.

The project has also actively participated in yearly celebrations of World Mangrove Day.



Sustainable management of Environmental Flows for West Coast rivers of Madagascar: A case of Betsiboka River

Ministry of Environment and Sustainable Development, Madagascar (MEDD)

This project seeks to promote the sustainable management of west coast Madagascar river basins to preserve flow, reduce sediment, and protect coastal ecosystems. To date, it has facilitated capacity building of the members of the national technical committee on the concept of environmental flows, territorial planning, GIS and hydrology, teledetection, risk and disaster management, watershed environment and Access databases. The Environmental Flows Assessments(EFA) for the pilot rivers catchment of Betsiboka river was conducted and used for sustainable flows management. Additionally, the project identified pressures on the catchment area and the negative impacts of human activities.

MAURITIUS



Coral culture for small-scale reef rehabilitation in Mauritius

Mauritius Oceanography Institute (MOI)

This project seeks to mitigate climate impact on coastal communities through coral restoration, training, and raising environmental awareness. To date, the project has facilitated the construction of multi-layered rope nurseries at Poudre D'Or, Le Morne and Bambous virieux. The rope nurseries were also populated with coral fragments, which are under continuous maintenance. Additionally, the project has aided the registration of 61 eco-guide trainees at three earmarked regions in Poudre D'Or, Le Morne and Bambous Virieux. The training program has enhanced awareness and understanding of the local coral ecosystem.



MAURITIUS



Assessment of Blue Carbon Ecosystem (Seagrass) around the island of Mauritius

Ministry of Blue Economy, Marine Resources, Fisheries and Shipping (MBEMRFS)

This project aims to assess Mauritius' coastal seagrass beds for carbon sink potential, informing conservation and policy efforts. Significant strides have been taken with this project to date. Comprehensive mapping of seagrass ecosystems spanning the entire country has been completed, with active development of a corresponding management plan. Concurrently, data analysis is in progress to assess the blue carbon storage potential of these seagrasses, promising valuable insights into their ecological significance. The seagrass mapping will contribute towards the country's national MSP process.



MAURITIUS

Habitat restoration and attraction of seabirds to Ile aux Aigrettes (Mauritius)

Mauritian Wildlife Foundation

This project aims to restore Ile aux Aigrettes' coastal forest to attract seabirds and enhance marine ecosystem functions. To date, the project has managed to clear more than 14 hectares of invasive species, identify 1 hectare of land suitable for seabird return, and reintroduced 486 native plants. The project has also facilitated the training of 12,500 visitors on ecosystem restoration and trained 20 guides on seabird restoration. These endeavors have been undertaken to restore the island's habitat and foster an environment conducive to seabirds.

*Right: Bird decoy being set up at Ile aux Aigrettes.
Photo: Mauritian Wildlife Foundation*



MOZAMBIQUE

Undertake seagrass restoration for Sustainable Shellfish and drafting a management Plan Action guideline for seagrass restoration (Mozambique)

Universidade Eduardo Mondlane

This project aims to develop a management action plan for seagrass meadows based on concrete research. To date, the project has conducted restoration efforts that have led to the reclamation of 2 hectares of seagrass in Maputo Bay and 0.2 ha in Inhambane. A seagrass management strategy supported by a Community-Based Organization in Inhaca has also been established. The documentation of best practices together with LMMAs reinforcement at Inhambane Bay and extended dialogue between communities coupled with best practices and engagements of other actors and continuing discussion on alternative livelihoods enabled the initial formulation of seagrass management strategy for Inhambane.



Seagrass in Maputo Bay.
Photo by Salamao Bandeira

MOZAMBIQUE

Mangrove Restoration and Livelihood Support through Community Participation in Limpopo River Estuary, Mozambique

Agência Nacional para o Controlo da Qualidade Ambiental (AQUA)

The project aims to enhance mangrove management in Mozambique via restoration, community empowerment, and data for decision-making. Under this project, reforestation efforts for 20 hectares of degraded mangroves have been established. Additionally, the project has conducted carbon inventories above and below ground in the area with restored mangroves. Alternative livelihood activities like bee-keeping and pig farming have been established for sustainability and awareness campaigns have engaged approximately 2,000 community members.

Members of the community participating in mangrove restoration in Mozambique.
Photos: Henriques Jacinto Balidy



MOZAMBIQUE

Environmental Flows for enhanced Biodiversity and Poverty alleviation in the Incomati delta

Universidade Eduardo Mondlane (UEM) - Faculty of Engineering

This project aims to create environmental flows for Lower Incomati to enhance biodiversity, ecosystem services, and prioritize vulnerable user groups' well-being. The project has successfully concluded data collection on salinity levels and piscivorous waterbirds. Additionally, in-depth interviews and biographies have been carried out to comprehend the landscape's evolution and its effects on various activities. The project continues to actively monitor changes and the functionality of the wetland. The deployment of local observatory salinity data loggers has been attained, with ongoing monitoring of water use impacts by 15 dedicated river observers.

Photo: Bob Marjawa/ Pixabay



SEYCHELLES

Improving Water Quality by use of Constructed Wetland Wastewater Treatment at a Farm in the South of Mahé Island

*Waste Enforcement and Permits Division,
Environment Department, Ministry of Environment,
Energy and Climate Change – MECC*

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This project aims to identify efficient methods for treating and recycling wastewater from a piggery. Key milestones have been achieved in this project, including successful engagement with stakeholders and partners, leading to the project site selection. Additionally, a final endorsement from the Department of Agriculture has been sought, and progress has been made toward a preliminary agreement involving the farmers, the Ministry of Agriculture, and the Department of Agriculture. The project also took part in signing a trilateral agreement involving the Environment Department, the Department of Agriculture, and the farmers. Furthermore, a topographical survey and map have been generated, and wetland designs finalized, and ready for tendering. The construction tender, set to be awarded imminently, will mark the project's upcoming implementation phase.

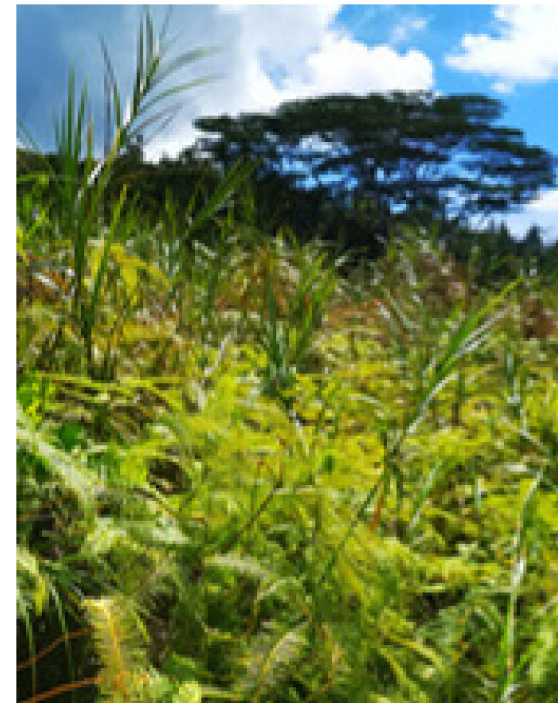
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SEYCHELLES

Community-based ecological coastal rehabilitation using an ecosystem approach

Terrestrial Restoration Action Society of Seychelles (TRASS)

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This project aims to restore fragmented wetlands to enhance sediment absorption and protect Curieuse marine park. To date, this project has effectively restored three hectares of wetlands, associated woodlands, and two hectares of degraded hill areas. These rehabilitated areas are now undergoing consistent maintenance to ensure their sustained progress and recovery. 12 community-engagement activities have also been conducted.

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Sustainable Catchment Management through Enhanced Environmental Flow Assessment and Implementation for the protection of the Western Indian Ocean from land-based sources and activities in Tanzania

Sokoine University of Agriculture and National Environmental Management Council

This project aims to lessen the impacts of land-based activities and sustainably manage coastal and riverine ecosystems through Environmental Flow Assessment and regional partnerships. To date, the project has carried out Environmental Flow Assessments in pilot rivers, systematically documented through multiple reports including site selection, catchment baseline description, and wet and dry season sampling. In addition, restoration efforts using indigenous species has been successful, and 190 water sources identified and placed under community management. Additionally, the introduction of beekeeping as a livelihood option has been successfully initiated.





Developing collaborative management plan and sustainable mangrove restoration model in the Rufiji Delta, Tanzania

Institute of Marine Sciences in Tanzania

This project aims to promote sustainable management of Rufiji Delta's mangroves. An assessment report has been finalized. Digitized maps have shown that a change of mangrove species occurred between 1989 and 2019, as well as a reduction of mangrove coverage. Restoration sites have been identified, community consultations were done in 10 villages, and 9 restoration areas evaluated. Additionally, local teachers have been trained on how to set up Mangrove Environmental Clubs, and a collaborative guide on sustainable harvesting has been developed.



TANZANIA



Upscaling and Amplification of the Msingini Wastewater Treatment Facility Model in Chake Chake Town, Pemba

Ministry of Blue Economy and Fisheries

This project aims to reduce land-based sources of pollution to the Pemba Channel Conservation Area (PECCA) and associated marine and coastal ecosystems emanating from Chake Chake municipality through the construction of artificial wetland systems. To date, the project has completed a household survey in the catchment area in three shehias (villages). Wastewater and sludge have been cleared from the wetland, and a storage area for sludge disposal completed. Awareness meetings have been conducted for the local community. Additionally, a topographic map of a constructed wetland system (CWS) and its surroundings has been produced, incorporating crucial information such as information on tidal regimes and local sea-level rise.



SOUTH AFRICA

Improvement of ecosystem health and water quality by implementing a Source to Sea-based approach to tackle marine litter in five priority river systems in Durban, Kwazulu- Natal, South Africa



Department of Forestry, Fisheries and Environment (DFFE)

This project aimed to reduce the impacts of litter on freshwater, marine and coastal environments by implementing basin-wide interventions to recover land and riverine-based litter. To date, this project has managed to include ongoing internal consultations for recruitment in litter recovery, mapping litter hotspots in collaboration with local authorities, identifying existing outreach initiatives with the Durban Solid Waste (DSW) Department, and establishing a microplastics assessment laboratory with the DFFE. Additionally, initial discussions with project partners for potential collaboration have begun, and a Project Coordinator has been hired.



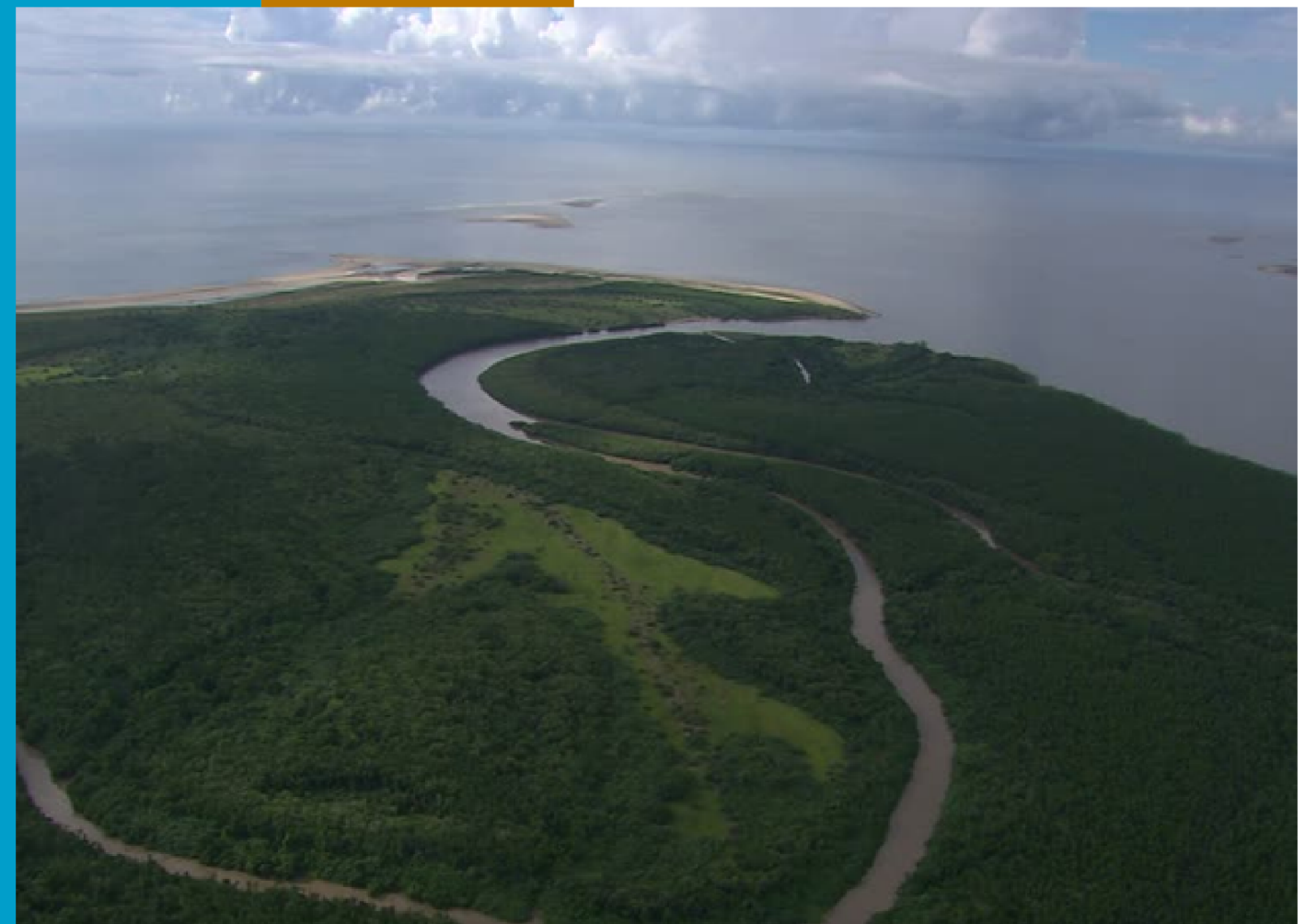
SOUTH AFRICA



Improvements in Marine Water Quality through enhanced Estuarine Management (South Africa)

Department of Forestry, Fisheries and Environment (DFFE)

The aim of this project was to mitigate or remove adverse effects that impact water quality through concrete resource stress reduction activities. This project has refined water quality situational reports, is implementing real-time water quality monitoring and ongoing efforts in the development of adaptive management plans. Additionally, training initiatives on estuarine management and monitoring are underway. The project is supporting measures aligned with Operation Phakisa.





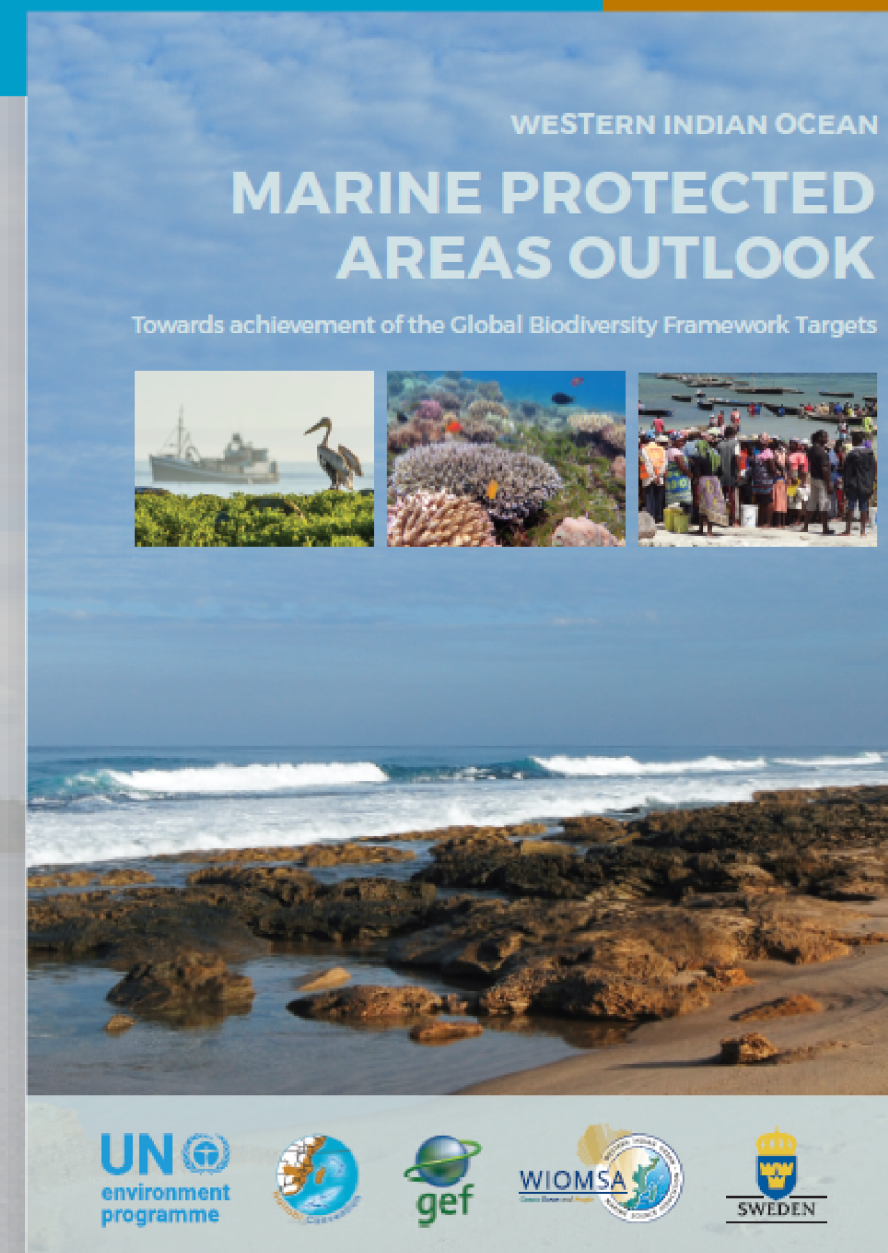
Regional Outputs

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COMPONENT A: Sustainable Management of Critical Habitats

Several restoration guidelines have been developed under this component. These include:

1. Guidelines on Mangrove Ecosystem Restoration for the Western Indian Ocean Region
2. Guidelines on Seagrass Ecosystem Restoration for the Western Indian Ocean Region
3. Guidelines on Methodologies for the Valuation of Coastal & Marine Ecosystems
4. Climate Change Vulnerability Assessment (CCVA) Toolkit
5. Marine Protected Areas Outlook for the Western Indian Ocean Region
6. Western Indian Ocean Critical Habitats Outlook
7. A Strategic Framework for Marine Spatial Planning



COMPONENT B: Improved Water Quality

Outputs under this WIOSAP component include:

1. A Review of the Current Status of Marine Litter and Microplastics Knowledge in the Western Indian Ocean Region: amounts, sources, fate and resultant ecological impacts on the coastal and marine environment and on human health
2. Economic Consequences of Unmanaged Plastics And Economic Opportunities in the Western Indian Ocean: Steps Toward Action Plans
3. A Review of Marine Plastic Litter in the Western Indian Ocean Region: Effectiveness of measures undertaken and opportunities
4. Marine Plastic Litter in the WIO Region: Status, implications on the environment, human populations and effectiveness of measures and opportunities: A Synthesis Report
5. Regional Marine Litter Action Plan and its French translation
6. Western Indian Ocean Strategic Framework for Coastal & Marine Water Quality Management
7. Western Indian Ocean Situation Assessment on Marine Pollution and Coastal & Marine Water Quality Management
8. Western Indian Ocean Guidelines for Setting Water and Sediment Quality Targets for Coastal and Marine Areas

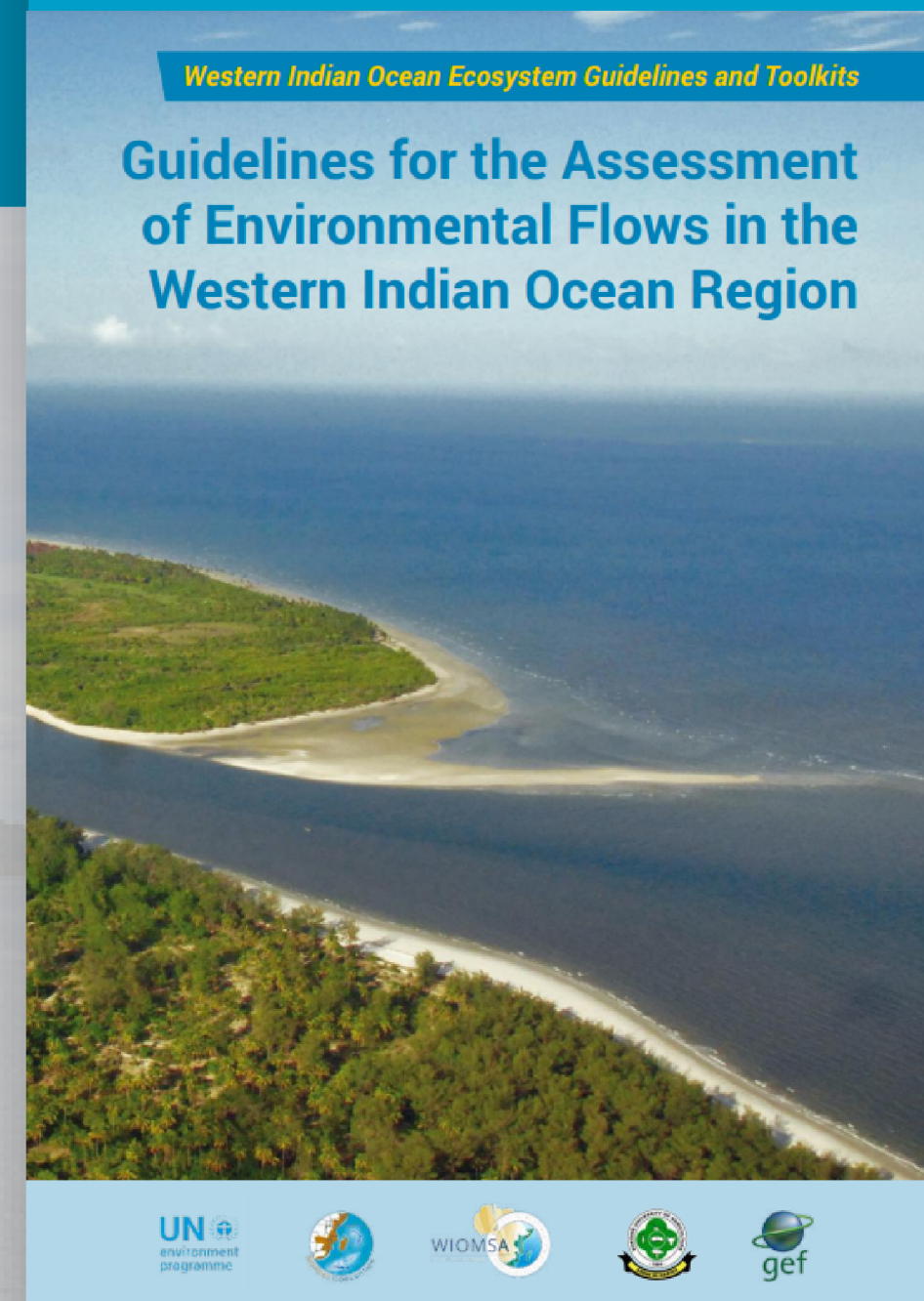


COMPONENT C: Sustainable Management of River Flows

Under this Component, the WIOSAP project has developed:

- Guidelines for the Assessment of Environmental Flows in the Western Indian Ocean Region

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COMPONENT D: Governance and Regional Collaboration

Under this Component, the outputs are:

1. The Integrated Coastal Zone Management (ICZM) Protocol
2. The maintenance of the Nairobi Convention Clearinghouse Mechanism
3. The Western Indian Ocean Science to Policy Platform Series
4. Towards Sustainable Port Development in the Western Indian Ocean: *Scenario Analysis*
5. Towards Sustainable Port Development in the Western Indian Ocean: *Toolkit for Sustainable Port Development in a Blue Economy*
6. Towards Sustainable Port Development in the Western Indian Ocean: *Situation Assessment*





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Western Indian Ocean Region



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