ADDRESSING THE THREE PLANETARY CRISES THROUGH THE IMPLEMENTATION OF THE WESTERN INDIAN OCEAN STRATEGIC ACTION PROGRAMMES

SPECIAL SESSION REPORT

Date: 14th October 2022

Venue: Nelson Mandela Bay, South Africa

Background

The Western Indian Ocean (WIO) is recognized globally for its unique biological richness, natural beauty and high ecological and socio-economic value. The WIO region's coastal habitats, which include coastal forests, sand dunes, beaches, rocky shores, mangroves, seagrass beds and coral reefs, support rich and complex populations of marine species that rely on the integrity of the various ecosystems for their productivity. The marine assets of the WIO have been estimated to have a value of about US$ 333 bn, supporting community livelihoods and driving coastal and national economies with a Gross marine Product of US20.8bn compared to the GDPs of regional countries making the WIO ocean economy the 4th biggest if it were considered as a country.

Recognizing that the threats to the productivity and integrity of the coastal and marine environment due to pollution and habitat degradation are not confined to national boundaries, the governments of the WIO region, in 1985, signed the Nairobi Convention. The Convention offers a vital regional platform for the protection, management and development of the marine and coastal environment in the Eastern and Southern African region. The United Nations Environment Programme (UNEP), hosting the Secretariat of the Nairobi Convention, has actively supported the efforts of the governments in Eastern and Southern Africa to develop more sustainable approaches for the management of their common marine and coastal ecosystems through various programmes, including the Western Indian Ocean Strategic Action Programme (WIO-SAP) and SAPPHIRE among others. The WIO-SAP incorporates strategies for assisting countries to achieve an overall regional vision: "People of the region prospering from a healthy Western Indian Ocean" by supporting the delivery of four key objectives: Critical coastal habitats in the WIO region protected, restored and managed for sustainable use; Water quality in the WIO region meets international standards by the year 2035; River flows in the WIO region are wisely and sustainably managed by the year 2035; and Stakeholders will collaborate effectively at the regional level in addressing transboundary challenges.

The WIOSAP project which is partly supporting implementation of the WIO-SAP has been running for the last 5 years with the main objective being 'to reduce impacts from land-based sources and activities and sustainably manage critical coastal and marine ecosystems through the implementation of the agreed WIO-SAP priorities with the support of partnerships at national and regional levels'. The SAPPHIRE GEF funded sister project promotes policy and institutional reform to help improve the management of the Western Indian Ocean LME. It is building capacity among

governments, communities, partners, intergovernmental organizations and the private sector in sustainable resource management and ocean governance.

With the participation of the Contracting Parties to the Convention, WIOMSA, WIO-C members, FARI members, implementing partners and five technical working groups/task forces established under the project, various on the ground interventions are being implemented towards achievement of the foregoing objective. The interventions range from (but not limited to) ecosystem management and restoration, marine spatial planning, climate change adaptation, economic valuation, community livelihoods, marine water quality improvement, river flow enhancement and support in the development and implementation of various overarching policy interventions. These interventions and partnerships tie very closely to the global commitments under the super decade including Agenda 2030, Decade of Ocean Science, Decade on Ecosystem Restoration, Paris 2015 Agreement and its successor Glasgow Compact and finally the anticipated targets under the post 2020 global biodiversity framework.

This special session showed how the implementation of the WIO-SAP, SAPPHIRE and SIDA Partnership projects contribute to alleviating impacts from the triple planetary crises and linkage to the opportunities offered by the super decade. Presentations were made under different thematic areas: ecosystem management and restoration, climate change adaptation, economic valuation, community livelihoods and marine water quality improvement. The session was convened by FARI members in collaboration with WIOMSA and the Nairobi Convention Secretariat. The targeted audience was Focal Points of the Convention, regional experts, WIOC members, and FARI members, among others.

The main objective of the session were to have presentations to highlight progress made in the implementation of the various interventions supported by the Convention and discussions on next steps.

SUMMARY OF PROCEEDING OF "THE ADDRESSING THE THREE PLANETARY CRISES THROUGH THE IMPLEMENTATION OF THE WESTERN INDIAN OCEAN STRATEGIC ACTION PROGRAMMES"

SPECIAL SESSION

Session 1: Opening and introduction

The meeting was called to order at 8:30 am by the session chair, Margareth Kyewalyanga, the Interim chair of FARI. She thanked WIOMSA and Nelson Mandela University for facilitating and hosting the special session. She then welcomed the presenters and the participants to the special session highlighting its significance in alleviating impacts from the triple planetary crises and linkage to the opportunities offered by the super decade. She then led the adoption of the agenda (Annex 1).

Session 2: Thematic Presentations focusing on sustainable management of critical habitats

The chair then welcomed presenters to make their presentations in the following order.

1. *Community-based ecological coastal rehabilitation using an ecosystem approach, Seychelles*. (Dr. Elvina Henriette)

Presentation highlights:
Dr. Henriette highlighted that the Community-based ecological coastal rehabilitation using an ecosystem approach in the Seychelles project aims to rehabilitate fragmented wetlands to improve their functions, e.g. enhanced absorption and filtration of sediments from badly-eroded degraded hills, thus protecting seagrass beds and coral reefs in the Curieuse marine park. The key activities include the preparation of the rehabilitation and management plans for the marsh area, mangroves forest, degraded shrubland and barren hill above the wetlands based on scientific data; rehabilitation and management of the wetlands and foothills at Pasquière to enhance the ecosystem and enable the development of sustainable activities, e.g. eco-tourism, education and research; enhancement of the understanding on the importance of ecological rehabilitation; and training and enhancing the restoration skills and knowledge amongst local communities and participating organizations.

In her experience, she mentioned that the wetlands restore very fast, and therefore, they have been able to rehabilitate 3 ha of wetland and associated habitats, 2 ha degraded hill through planting 5,900 seedlings and palm-leaf anti-erosion barrier technique tested on steep slopes with great success. Twelve community engagement activities have been undertaken, and the project has also been broadcasted through local and international press, social media and scientific publications.

2 *Habitat restoration and attraction of seabirds to Ile aux Aigrettes in Mauritius. (*Ms Martine Goder)

Presentation highlights:
Ms Goder highlighted that the project aims to restore coastal forest habitat on Ile aux Aigrettes, specifically 'seabird habitat', to enhance marine ecosystem functioning by attracting seabirds. A

lot has been achieved through weeding off 11 ha of invasive alien species and replanting native species to reconstitute the pristine environment suitable for native fauna reintroduction. 1 ha seabird area has been weeded and planted with Mascarene endemic grass (*Chrysopogon argustus*), seabird decoys, and callback systems have been installed to help in the native birds attraction. Apart from receiving 12,500 visitors, the project team has also trained guides, students and staff members on seabird restoration. In addition, scientific publications, press releases and social media communication materials have been developed.

3 *Mangrove Restoration and Livelihood Support through Community Participation in Limpopo River Estuary, Mozambique* (Jacinta Laissone)

Presentation highlights:
In her presentation, Jacinta highlighted that the project's overall objective is to improve mangrove management in Mozambique through restoration, community empowerment and generating baseline information to support decision-making.

So far, the project has conducted carbon inventories above and below ground and soil pools in healthy, degraded and restored mangrove forests. Mangrove fauna assessment in healthy, degraded and restored areas, including change detection, has been done. Planting and hydrological restoration of mangroves in degraded areas through which 20 hectares of degraded area and 1855 meters of channels were restored. Community mangrove nursery containing 60,000 mangrove seedlings from 6 species (*Avicennia marina, Ceriops tagal, Bruguiera gymnorrhiza, Rhizophora mucronata, Xylocarpus granatum* and *Thespesia sp.*) have been established. Empowerment initiatives through creating a women's cooperative for fish trade and support on acquiring some equipment (e.g., one freezer). Alternative livelihoods such as smart hives and introducing pig farming have been done. Environmental education campaigns on the importance of mangroves and best management practices have been conducted, including training 187 community members about environmental law aspects.

4 *Climate Change Vulnerability Assessment in Selected Coastal Communities in the WIO Region* (Dr. Jacob Ochiewo)

Presentation highlights
National assessments were undertaken in four countries, namely Kenya, Tanzania, Mozambique, and Madagascar, to document the social-adaptive capacity of local communities depending on coral reefs, seagrass beds and mangroves to the effects of climate change. The study entailed: i) Description of the intensity of climate change threats and identification of potential impacts relative to the capacity of the interacting human and ecological systems to cope with such threats; ii) Identification of communities that are most vulnerable to climate change impacts and recommendations on suitable adaptation options. The assessments applied the CCVA toolkit developed under the WIOSAP project.

The study yielded proposed revisions to the social aspects of the CCVA toolkit developed for the western Indian Ocean countries, including a generic survey template to ensure that the CCVA toolkit captures different social and economic contexts in the Western Indian Ocean Countries. The findings from the study revealed that most coastal communities in the four countries have low adaptive capacity and high sensitivity to climate change and therefore are considered vulnerable. Among other recommendations, Dr Ochiewo retaliated with more targeted

enforcement of the climate change strategies in the countries to enhance the coastal community's resilience to climate change.

5 *Sustainable Port Management in the WIO Region* (Dr. Susan Taljaard)

Project highlights:

Dr. Taljaard made a presentation on sustainable port management in the WIO region. She mentioned that The Nairobi Convention Secretariat, through the WIOSAP project, had commissioned the Council for Scientific and Industrial Research (CSIR, South Africa) and the Maritime Technology Cooperation Centre (MTCC) to undertake the project, in consultation with regional port partners and other stakeholders, aimed at advancing sustainable port development in the region. MTCC was tasked with convening and coordinating the stakeholders, while CSIR was responsible for the project's technical aspects. Other core partners include WIOMSA, Macquarie University and PMAESA. The project's objectives are to map existing and planned ports in the WIO region, develop and compare sustainable development scenarios in port operations and develop a tool kit for green ports development. The outputs generated from this work will enable national governments to support and guide the development of new policy options for sustainable port development in the WIO region. Geospatial analysis of the WIO ports, sustainable port scenarios analysis and green toolkit development were underway at the time of the presentation.

6 *Water Quality standards in the WIO region in relation to international standards* (Steve Weerts)

Steven Weerts presented on water quality standards in relation to international standards in the WIO region. He highlighted that the project was undertaken through Nairobi Convention and is linked to the protection and management of the coastal and marine environment in the region that resulted from resolutions made by contracting parties on the need for regional & national actions to address stresses on the marine environment, including water quality through Western Indian Ocean Strategic Programme (WIO-SAP).

One of the strategic objectives and targets of the WIO-SAP is to ensure that water quality in the WIO region meets international standards by 2035. Therefore this project developed a water quality assessment in the WIO report. It also came up with a set of Guidelines for Setting Water and Sediment Quality Targets for Coastal and Marine areas ("WQ Standards"). In addition, a Strategic Framework for Marine & Coastal Water Quality Management (C&MWQM) was developed to help harmonize, monitor, and manage the water quality standards. Finally, a policy brief was developed to guide the policymakers in the region. It is important to note that it is impossible to monitor all potential pollutants everywhere, so prioritizing critical parameters based on the requirements of the ecosystem/uses and type of pollution sources is recommended. This project advocated the preparation of C&MWQ management plans, including actions & resource planning, a template for pilot testing implementation frameworks, a template for monitoring, status reports and regional quality targets.

The policy brief developed in this work yielded various COP10 recommendations, including Adoption of the Strategic Framework for C&MWQM for WIO Region, Guidelines for setting Quality Targets, also at country-level as appropriate. A formally established regional task force for C&MWQM was recommended. In addition, the document asks the contracting parties to consider the establishment of National and Local Task Forces for C&MWQM to facilitate and coordinate

at the country-level but also in marine pollution hotspots. Further, the Nairobi Convention Secretariat is urged to work with partners to develop capacity-building programmes to support the effective implementation of the Strategic Framework for C&MWQM in WIO Region.

7 *Improving Mtwapa Creek water quality by use of Constructed Wetland Wastewater Treatment technology in Shimo la Tewa IP: Kenya Marine and Fisheries Research Institute* (Steve Mwangi)

Presentation highlights:

Steve Mwangi highlighted that the project aims to improve water quality in Mtwapa Creek by addressing the issue of wastewater management in Shimo la Tewa Prison, one of the major sources of pollution in the creek. The project began with the evaluation of the design and performance of the existing wastewater treatment facility in Shimo la Tewa. This was followed by redesigning, constructing and operationalizing an efficient and easy-to-maintain constructed wetland system for the treatment of sewage and wastewater at the prison facility. The evaluation of the design and performance of the improved wastewater treatment facility in Shimo la Tewa following the commissioning of the infrastructure and monitoring of water quality in the receiving water of Mtwapa Creek has been a continuous process. Rehabilitation of the sewer system feeding into the anaerobic baffled reactor (ABR); and Improving bathrooms at the prison is also already undertaken. In addition, operationalizing irrigation of the prison farms; constructing, stocking and managing a pilot fish pond is underway. Publicizing/disseminating information through visits, print and electronic media, briefs, brochures and scientific publications is ongoing.

8 *Upscaling and Amplification of the Msingini Wastewater Treatment Facility Model in Chake Chake Town, Pemba, IP: Ministry of Blue Economy and Fisheries (*Mwalim Khamis Pemba)

Presentation Highlights:

Mwalim Khamis Pemba highlighted that the 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. The activities undertaken include amplifying the number of sewer connections and stormwater drainage; collecting water flow, water quality, user numbers, and system operation data and documenting the status through a report; and enhancing local capacity for management of the CWS. Other activities include redesigning and constructing the Constructed Wetland System and creating wastewater regulations and payment for the ecosystem services system. Sensitization workshops have been undertaken and will be done again after commissioning the new system.

Plenary sessions

1. The participants sort to understand whether the hydrological restoration is a routine process. Jacinta retaliated that it is a one-time operation to create enabling environment for mangrove recruitment.
2. A question was raised regarding the sustainability of the Shimo La Tewa constructed wetland project. Steve Mwangi confirmed that the creation of maintenance manuals is underway, and although the CWS are easy to maintain, the partnership between KMFRI

and KPS will ensure the person in charge of the prison is committed to having a maintenance team on the ground and will conduct training from time to time whenever necessary.

3. In response to a question raised on how the Shimo la Tewa project is managing the challenges with the vertical flow system and how they are able to control the smell emanating from the waste water, Steve Mwangi mentioned that they are able to regulate the dosage of the effluent into the constructed wetland using mechanical dosing system to avoid clogging. He added that wet air scrubbing could be used to control the smell.
4. Further, a participant sort clarification on whether the treated water quality is good enough for irrigation. Steve mentioned that the project has put in place a monitoring system, and should there be an issue with the water quality, they may consider improving the system because their goal is to have the system adopted not only at the local scale but also regionally and even globally.
5. A participant wanted clarification on whether the chake chake waste-water treatment project had a monitoring mechanism for the effluent discharged from the treatment plant to ensure that the recommended standards are met. Mr. Mwalim confirmed their intention to set up a monitoring scheme.
6. A question was raised on how the polluter pays principle would be applied to ensure the water quality standards are met in the WIO region, particularly regarding oil spills. Steve Weerts retaliated that a good response mechanism with a clear strategic framework backed up by an insurance system would help ensure that the polluters pay for the pollution caused.
7. Participants sort to know the process through which the climate change vulnerability assessment was undertaken in the four countries. Dr Ochiewo mentioned that a joint design of survey instruments was adopted where the respective national consultants liaised with the selected communities on the ground during the social-economic data collection phase, after which the data was integrated to give a wholistic perspective of the vulnerability status of the coastal communities in the WIO region.
8. A question was raised on how the green ports toolkit could be incorporated in the governance system of the western Indian Ocean ports. Dr Taljaard mentioned that there had been an involvement of the port operators and the respective governments, who are represented by country focal points in the validation of the work to enhance ownership and subsequent implementation of the toolkit. She added that plans are underway to pilot-test the toolkit within the region.

Closing remarks

The chair then called upon Dr Jared Bosire to give the closing remarks.

Dr. Bosire thanked the session chair for managing the time within the program. He appreciated the presenters who showcased the various demonstration projects within the WIO region. Further, Dr. Bosire thanked the participants and all the people who helped make the session successful. He added that the work is intended to have local, national, regional, and global significance. He encouraged regional shared learning exchange programs where people learn from other people's experiences, exchange capacity, and build regional partnerships. He hoped that the work would

contribute to global priorities such as UN Decade on Ecosystem Restoration, which aims to prevent, halt and reverse the degradation of ecosystems worldwide, the Post 2020 Global Biodiversity Framework, and the Paris Agreement, among other initiatives while linking the science to policy issues in the region.

The session was adjourned at 10:30 am.

Annex 1: Agenda

ADDRESSING THE THREE PLANETARY CRISES THROUGH THE IMPLEMENTATION OF THE WESTERN INDIAN OCEAN STRATEGIC ACTION PROGRAMMES-*SPECIAL SESSION*

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Venue: Nelson Mandela Bay, South Africa

Provisional Agenda

Time	Activity	Responsible
Session I: Opening and Introductions		
8:30-8:35	Opening remarks	FARI (Margareth Kyewalyanga)
Session II: Thematic Presentations focusing on sustainable management of critical habitats		
8:35-9:45	Community-based ecological coastal rehabilitation using an ecosystem approach, Seychelles IP: Terrestrial Restoration Action Society of Seychelles	Elvina Henriette
	Habitat restoration and attraction of seabirds to Ile aux Aigrettes (Mauritius) (Mauritius Wildlife Foundation)	Vikash Tatayah
	Mangrove Restoration and Livelihood Support through Community Participation in Limpopo River Estuary, Mozambique (Aqua)	Jacinta Laissone
	Climate Change Vulnerability Assessment in Selected Coastal Communities in the WIO Region	Jacob Ochiewo
	Sustainable Port Management in the WIO Region	Susan Taljaard
	Economic valuation and identifying potential investment opportunities for the Trans-Boundary Conservation Area (TBCA) between Kenya and Tanzania	Kyle Harris
	Plenary discussion	
Session II: Thematic Presentations focusing on water quality improvement		
9:45-10:25	Water Quality standards in the WIO region in relation to international standards	Steve Weerts

	Improving Mtwapa Creek water quality by use of Constructed Wetland Wastewater Treatment technology in Shimo la Tewa (Kenya Marine and Fisheries Research Institute)	Stephen Mwangi
	Upscaling and Amplification of the Msingini Wastewater Treatment Facility Model in Chake Chake Town, Pemba, (Ministry of Blue Economy and Fisheries)	Mwalim Mwalim Khamis
	Plenary discussions	
10:25-10:30	Closing remarks	Nairobi Convention
End of the special session		

Annex 2: List of Participants

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27	Margareth		
28	Mwalimu Khamis		
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36	Jane Ndungu		
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