



MARITIME TECHNOLOGY COOPERATION CENTRE AFRICA (MTCC-Africa)

CAPACITY BUILDING FOR CLIMATE MITIGATION IN THE MARITIME SHIPPING INDUSTRY

THE GLOBAL MTCC NETWORK (GMN) PROJECT

Report on the 'Presentations On Green Initiatives Implemented in
the WIO Region on 16th August 2022, Dar es Salaam, Tanzania.

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1. INTRODUCTION

The WIO region is experiencing unprecedented pace of large-scale developments ranging from ports, mining, roads and railways, agriculture, and oil and gas among others all principally driven by large infrastructure demands and financial inflows from different funding streams. Most of these developments are concentrated around coastal zones with rich natural resources and while the region has an opportunity to define sustainable trajectories for these investments, they have potential to significantly impact on the integrity of critical habitats and the resource base that future developments will depend on. In the WIO Region coastal communities are strongly reliant on coastal resources for their lives and livelihoods. Complimentary to the Strategic Framework for Coastal and Marine Water Quality Monitoring and Management in the Western Indian Ocean Region (UNEP et al. 2021 in prep), the activities proposed here seek to facilitate sustainable port development in the WIO by assessing the environmental impacts of operational, planned, and proposed ports in the WIO Region with the aim of developing different scenarios for future development, produce policy briefs and a Toolkit for Green Port Development that will contribute to sustainable port development in the Western Indian Ocean (WIO).

This port information report highlights the presentations that were made during the Towards Sustainable Port Development in the Western Indian Ocean Region Stakeholder Workshop that was held from the 16th to 17th August 2022 in Dar es Salaam, Tanzania.

The country information highlighted below highlights presentations of the port legislation, policies and authorities of the relevant in the WIO region by regional experts.

2. ZANZIBAR PORTS CORPORATION (ZPC)

Consists of five ports which Malindi Ports and Mkokotoni in Unguja and Wete, Weshu and Mkoani in Pemba.

Malindi Port

Malindi port is main Multipurpose port carries 95% of Cargo in Zanzibar that includes Containers, Bulk Cargo and General Cargo . Other ports are small carries 5% of all Cargo in Zanzibar

Malindi Port has west wharf length of 240m and depth varies from 13 to 8m while North has 110m with depth of 8m to 5m. The West wharf accommodate vessels up to 10m draft with 700 boxes and Length overall of vessels up to 210m while Bulk vessels reaches 35,000GRT carries up to 35,000tons of bulk cargo. Average throughput over the last 10 years is about 75,000teu and approximately 400,000 tons of Bulk and General Cargo. The vessels calling at Malindi Port has its own ship crane and ZPC has a Mobile Harbor Crane to assist ship to shore activities. Also Malindi port is a compliance of International Ship and Port Facility Security Code as well other IMO convention.

Challenge

Malindi Port is highly congested due to limited space of stacking containers since it was built in heritage sites under the control of Stone town Conservation Authority. The Authority do not allow any expansion not only for stacking container yard but also for expanding the wharf of the port. Also Stuffing and Distuffing are carried out within Malindi Port premises which hamper the operation of discharging and loading the cargo.

Due to mentioned above challenge, ZPC came up with immediate plan, intermediate plan and long term plan.

Immediate Plan to Decongest Malindi Port and Improve efficiency (one to six month)

- Having CFS outside the Port for activities of stuffing and destuffing,
- Purchasing MHC and other equipment's to improve performance of ship to shore
- Introduce report system including Terminal Operating System and Vessels Traffic System.

Intermediate Plan (up to 5years)

- Construction of Inland Container Depot (ICD) at 2km nearby
- Have Management Service Agreement with Consultant on efficiency way to operate Malindi Port and ICD
- introduce Container port in Mkoani Port in Pemba for economic and social development in Pemba
- Carried out Strategic Environmental assessment for Mangapwani , Finalising Feasibility study of Mangapwani Port and Construction of new Mangapwani Port including oil spill contingency plan and reception facilities
- Converting Malindi port to become International Cruise Passenger terminal and National local Passenger serving Zanzibar, Dar es Salaam, Pemba and Tanga.

Long term Plan (Between 5years to 30 years)

- Operation of Phase one Mangapwani Multipurpose port through PPP with Giant Operator expect to have capacity of 1 million teu with quay length of one km, depth of over 16m enable becomes hub port with transshipment cargo.
- Become Mangapwani Integrated Ports on implementation of other phases by constructing of Jetty for oil and Gas , DryDock , Offshore Service Centre and several back yard facilities such as Industrial Park and warehousing.

3. MADAGASCAR

Port management (infrastructural development) and operations

Environmental conformity requirements for infrastructure investments, Environmental assessment, fragile and protected areas.

I. Hierarchy of norms

- a. Constitution (recognises environmental protection as core value)
- b. International conventions (ratified) - UNCLOS, UNFCCC, IMO CONVENTION, ON POLLUTION, NAIROBI CONVENTION

II. National legislation

- a. Port management (infrastructural development) and operations
- b. Environmental conformity requirements for infrastructure investments, Environmental assessment, fragile and protected areas

Port Sustainability

I. Port sustainability orientations according to National Policy on Maritime Transport

- a. Port infrastructure development / extension to be the subject of Environmental Impact Studies
- b. Establishment of pollution prevention facilities at port
- c. Take into account innovations in the areas of biodiversity protection and pollution control in port projects

II. Port développement & extension projets

A step by step shift to renewable energy sources (solar & wind) for these ports



Ehoala, for example, started green initiative by attracting solar energy investment

4. KENYA

Overview of Kenyan Ports

- The port of Mombasa and other ports in Kenya are regulated by the Kenya Ports Authority Act.
- The Port of Mombasa is currently the main commercial port in Kenya and serves as entry point to Kenya, Uganda, Rwanda, Burundi, South Sudan, Northern Tanzania and Eastern DRC.
- Lamu Port Commissioned in 2021 with capacity of 32 berths upon completion
- The Port serves over 33 shipping lines and provides connectivity to over 80 sea ports worldwide.
- Proposed Shimoni Fishing Port
- The port Authority operates smaller ports in Malindi, Kilifi, Shimoni, Mtwapa and Lamu.
- Also operates inland ports

Key sustainability initiatives

- Green port policy to address the negative Environmental impact of port activities and operations focusing on green initiatives, emission reduction and guidance on environmentally friendly port development and operations.
 - Identifies environmental problems caused by the port of Mombasa
 - Recommends policy options and implementation plan
- Programmes adopted
 - Development of integrated Environmental Management Systems (EMS) - ISO: 14001 2015 Occupational Health and Safety Management System– ISO 45001: 2018
 - Development of a Strategic Waste Management Plan for the port of Mombasa
 - Acquisition of environmentally friendly and energy efficient cargo handling equipment
 - Comprehensive analysis and study on port Energy needs, alternative energy sources with focus on renewable energy. Implementation of recommended energy efficiency measure are ongoing.
 - Biodiversity protection and forestry programmes focusing on degraded coastal areas
 - Periodic Environmental auditing - evaluating the environmental performance of existing ports facilities, operations and activities.
 - All major infrastructural development subjected to Environmental Impact Assessment

- Ratification of Conventions –
 1. London Convention and Protocol
 2. Oil Pollution Preparedness and Response
 - a. National Oil spill response contingency plan
 - b. Stock pile of equipments
 3. Nairobi Convention
 4. MARPOL
 - Waste reception facilities for garbage, waste oil and sludge
 - Prevention of air emissions from ship
 - Implementation of IMO Sulphur limit – guidelines

Outcome or achievements of the said initiatives

1. Improvement in port efficiency
2. Improved waste management arising from port operations
3. Reduction in GHG emission – reducing the ship turn around time
4. Intermodal transport
5. Decongestion of the Port – Relocation of KOT to offshore terminal

Partnerships in the implementation of these initiatives

Sustainability into the future

1. Automation of port operations
2. On-shore power
3. Port concessions
4. Port efficiency technologies
5. Port city interactions / challenges and opportunities

5. MOZAMBIQUE

Key Sustainability Initiatives within the Port Of Maputo

Dredging Environmental Monitoring

Contract with the University to carry out Dredging Environmental Monitoring, which include liaising with the Fisheries Communities to understand and monitor the impact of Dredging on their activities

Air Quality and Noise Monitoring

Monitor the Air Quality through fixed control stations

Waste Management

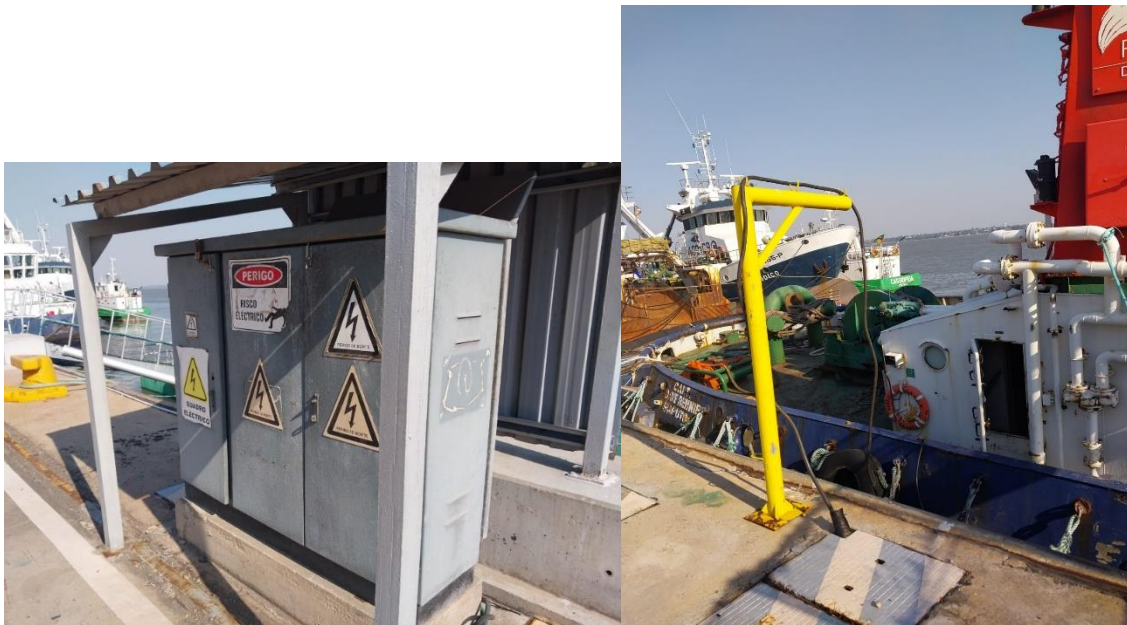
Waste generated ashore

Waste generated onboard vessels calling the Port

Solid Waste Management Opportunities and Circular Economy

The main Terminals in the Port of Maputo (MPDC Terminal, DP World Terminal and Grindrod Terminal) are engaging with GIZ, which is implementing the regional project "Western Indian Ocean Governance Initiative (WIOGI)" on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ). This initiative aims to implement the Circular Economy. The 3 companies foresee that a circular approach to waste management will generate a range of benefits for all companies in the Port, including reducing their pressure on the environment, creating additional value from materials and resources, stimulating innovation, as well as contributing to 'greening' the Port of Maputo.

Partnership in the implementation of this initiative: GIZ (Germany)



Shore based power supply



Reduction of Port emission of greenhouse gases such as carbon dioxide



Praia Zero

Partnership between environmental cooperative REPENSAR, MPDC, Heineken and the Municipality of Maputo to clean Costa do Sol beach in Maputo and establish a general public awareness to the importance of keeping it clean. The project has currently two components: a Recovery Center for glass and plastic, which buys to the general public and resells to selected suppliers in order to fund the project; and an educational component whereas “environmental educators” approach people on the beach to create awareness about littering.



6. COMOROS

Comoros have 2 main ports Moroni and Mutsamudu which serve for international ships and one access port which serve for domestic ships (Moheli).

In order to meet green port politic, the port authority has considered activities which represent a major source of pollution releases from all kinds of pollution which impacts the environment.

Their environmental issues are therefore vast, some of which are common to all the entities working in the port: water and air quality, waste management, energy consumption, oil spills, anti-fouling paints, dust emissions, among others.

From an ecological point of view, port activities are necessarily polluting, in particular those related to the handling and storage of dangerous goods such as hydrocarbons, those of water pollution by the escape of oils, and those resulting from dredging and disposal of its waste.

Faced with these issues related to environmental pollution within port areas, The National Maritime Affaires with the port Authority are working to protect the environment within the respective perimeters and around the country's port sites. Thus, they must be more severe in the repression of environmental violations, in particular by increasing the amount of financial penalties, and by adopting compensatory measures in order to improve the environmental quality of ports in the Union of the Comoros.

To meet social challenges, port activities naturally generate direct and indirect jobs within and around port sites. The ports located on the islands require the interaction of different professions for their operation, from freight forwarders to logisticians and stevedores.

To meet the challenges, port activities naturally generate direct and indirect jobs; these direct and indirect activities linked to the ports also influence the economic life.

Aware of the limited infrastructures of the today needs, the government of Comoros laid down the PCE 2030 which includes a project to build new ports and extension of existing ports.

Among the initiative to a sustainable development of our ports and order to meet green port, the following has been considered:

- CO₂ remove in all three ports
- Studies on corrosion, sedimentation Etc
- Implementation of laws and conventions on pollution from ship
- ratification of international convention regarding marine pollution as MARPOL and its annexes, CLC, OPRC
- Port and city interface

To meet international and regional conventions and memorandum, the government of Comoros is committed to bring new infrastructures which will respond social and economic issues. Partners like World Bank, European Union, France and bank of Africa manifest their interest to support the government where environmental impact is included on the studies done of the respective ports.

7. SOUTH AFRICA.

Introduction

Transnet National Ports Authority is in charge of 8 commercial Ports namely; Port of Saldanha, Cape Town, Mossel Bay, Port Elizabeth, Ngqura, Easts London, Durban and Richards Bay. Six of which are in the Indian ocean (Port of Cape Town and Saldanha are in the Atlantic Ocean). The port authority is in a process of developing a Port in Boegoebaai in the Northern Cape, which is in the west coast, Atlantic Ocean (Short to Medium Plan). There are also long-term plans to develop the Durban Dig Out Port (south of the current Port of Durban), still in the conceptual phase. Ports are managed in accordance with the National Ports Act, 12 of 2005. One of the functions of the authority is to regulate and control; pollution and the protection of the environment within the port limits (section 11(1)(g)(vii). Section 69 speaks to the Protection of environment. In 2020 TNPA developed a position paper on Green Port, which has informed the strategic direction of the company and ultimately the adoption of the green Port Concept across all eight commercial ports.

69. (1) The Authority must in the performance of its functions ensure that a fair and reasonable balance is achieved between the protection of the environment and the establishment, development, and maintenance of ports

(2) (a) The Authority must ensure that sustainable and transparent port planning processes are undertaken when formulation any port development framework.

(b) When undertaking any port planning process, the Authority must ensure that stakeholders are consulted and that all relevant biophysical and economic aspects are taken into account.

Sustainability Initiatives

- Waste Management strategy, each port has a Waste Management Plan as implementation document as required by the National Ports Act.
- Transnet Water policy for the management of water resources across TNPA ports for corporate offices and Port Operations.
- Energy Policy for the efficient management of energy across port operations (Electricity consumption, marine fleet and helicopter fuel).
- Management of sensitive habitats. Three ports have Estuarine Management Plans, gazette, and managed in collaboration with various stakeholders. The estuaries are Durban Bay in the Port of Durban Estuary, Umhlathuze-Richards Bay Estuary in the Port of Richards Bay, and Buffalo River Estuary in the Port of East London. Then the Port of Durban and Richards Bay have Natural Heritage sites which are areas of nature conservation. Ports with areas of vegetation have Alien invasive eradication programmes in terms of legislation, and that is 6 of the 8 commercial Ports (excluding port of Mossel Bay and Cape Town).
- TNPA conducts Long Term Ecological Monitoring across all Ports, that looks at the health of benthic flora and fauna, as well as mussels, water quality and sediment quality parameters.
- All TNPA commercial Ports are certified for ISO 14001, 45001, and 9001 through the Transnet Integrated Management System (TIMS).
- TNPA conducts Strategic Environmental Assessment to inform Port Developmental Framework Plans as well as Port Master Plans as informed by the National Ports Act.
- In a process of conducting Climate Change Risk and vulnerability studies across TNPA ports with an aim of having climate change response plans, and mitigation measures.
- TNPA has established a dedicated unit to implement alternative resources and technologies for energy and water supply to our corporate and commercial business ventures.
 - In the Energy area/space, we are exploring Renewable energy sources such as wind (offshore and onshore), solar, hydro, biomass, wave, tidal, ocean. Also, we are exploring Gas for Gas to Power and Fuel, which includes natural gas, green hydrogen economy for terminal operations (export and import facilitation) and own generation and commercial deployment.
 - In the Water area/space, we are exploring Harvesting, production, Beneficiation of water catchment areas and Desalination.
 - Activities include a recent RFI for renewable energy solutions for our 8 commercial ports, conceptualizing a green hybrid pilot project at TNPA headquarters, such as micro grids/small grids, rooftop solar PV, small wind turbines, hydrogen fuel cell stacks and small water harvesting demonstration with an intention of running the office 100% green ➤ Considering terminals for green hydrogen

Possible Partnerships

- Currently contracted CSIR for Long Term Ecological Monitoring across commercial Ports
- Exploring partnerships for deployment of these solutions and these include; Energy and Water Companies, Universities, Policy Makers, Science Councils, Financiers sand Technology providers, as well as Biodiversity Management/Ecology Institutions.

Sustainability into the future

- TNPA intend to reduce coal generated electricity consumption by deploying renewable energy and green hydrogen technologies.
- Facilitating Gas to Power conversion by building Gas Terminals
- Replacement of diesel use by our tub boats, pilot boats, helicopters with green hydrogen or electric vehicles fleet
- Desalination and beneficiation of water catchments
- Reuse of dredge material away from the environment to building material
- Climate change adaptation and mitigation implementation.
- Conduct ongoing marine alien invasive species monitoring in Ports that allows in-water hull cleaning.

8. SEYCHELLES

The port information is attached as an annex as a separate document.