Session 10: Emerging issues

Paper 1: Coastal Cities in WIO region: New opportunities for the Nairobi Convention

Nairobi Convention/WIOMSA

Background

Coastal cities are more than a collection of people and buildings and form complex systems of habitation, infrastructure, governance and public services. Coastal cities are not demarcated islands and mostly highly dependent on the inflow of goods and services from the surrounding areas. In addition, the volume and concentration of waste from these systems pose significant challenges to city and coastal managers. Cities are significant features of the coastal landscape and often have major environmental impacts which affect local populations reliant on coastal resources, as well as communities and environments beyond their immediate boundaries. Cities are also typically associated with increased and rapid urbanization, with resultant additional pressures on ecosystem services.

Coastal cities are dynamic, complex systems which need energy, water, food and other resources to function and support diverse activities. If managed properly cities have the potential to offer better socio-economic conditions and quality of life to residents as well as the wider nation within which they are situated. The integrated adaptive management and sustainable development of coastal cities is therefore essential. Inputs from science, technology, architecture, socio-economic information, and planning, all contributing key insights and perspectives.

Importantly, coastal cities are located at an intersection of climate-ocean impacts. Climate change impacts, particularly rising sea-levels, coastal erosion, wave inundation, and more frequent and severe cyclones have significant adverse impacts on vulnerable communities of coastal cities in WIO region. Large areas of many coastal cities in the region are situated at below 10 meters above mean sea-level making them particularly vulnerable to ocean-climate drivers. There are a number of coastal cities in the WIO region that are projected to be severely affected by rising sea levels, including Dar es Salaam, Durban, Maputo, Mombasa, and Port Louis (UN-Habitat 2014). City dwellers and the vibrant socio-economic activities of cities are already vulnerable to climate impacts from thermal stress, water quality and supply, and increased energy demand.

This inherent vulnerability of cities in the WIO coastal zone is exacerbated by a range of persistent issues including a high incidence of poverty, a low capacity to build and maintain appropriate coastal defences, susceptibility to cyclones, and sandy and erodible coasts. This poses a range of clear risks but also offers opportunities for the development of innovative solutions that are relevant and applicable to similar locations around the globe.

The relationship between environment, society and economy in urban centres are of key importance in the WIO region. In particular, there is a need to better understand these interdependencies, and the associated constraints to achieving the objectives of the SDGs, the Paris Climate Agreement and the Sendai Risk and Disaster Reduction Framework. This understanding should inform planning and decision-making in city environments. The coastal zone of the WIO region hosts major cities, harbours, industries and other development infrastructure that, whilst vulnerable themselves, are increasingly posing threats to the integrity of coastal and marine ecosystems and potentially worsening their own situation.

Regional and global processes

In the Rio +20 Conference outcome, "The future we want", cities emerged as the locus for change and the venue where policies are realised. Cities can forge new linkages and pacts among actors, offering innovative solutions that have the potential to influence development agendas at national, regional and global levels.

Further, the Rio document recognizes that, if well planned and developed, cities can promote economically, socially and environmentally sustainable societies.

In September 2015, the United Nations Sustainable Development Summit adopted a new framework to guide development efforts between 2015 and 2030, entitled "Transforming our world: the 2030 Agenda for sustainable development".
The 2030 Agenda contains 17 Sustainable Development Goals (SDGs) and 169 targets. The SDGs address, in an integrated manner, the social, economic and environmental dimensions of development, their interrelations, aspects related to peaceful societies and effective institutions, as well as means of implementation (finance, technology, capacity development etc.).

Of the 17 Goals, SDG 11, *make cities and human settlements inclusive, safe, resilient and sustainable* (Sustainable Cities and Communities), also known as the 'urban SDG', recognizes urbanization and city growth as a transformative force for development. This first-ever international agreement on urban-specific development, acknowledges sustainable urban development as a fundamental precondition for sustainable development.

In the SDG framework, marine litter and pollution in coastal and marine environmental are addressed through Goal 14 (target 14.1), with a particular focus on sources from land-based activities. Similarly, goals 6, 11 and 12 target untreated wastewater (6.3), and municipal and other waste management (11.6). Another relevant SDG is Goal 13, which targets the impacts of climate change. There are also other relevant targets/Goals such as 14.a, which focuses on the need for increased marine scientific knowledge and Goal 17, related to partnerships at local, regional, and global levels.

The adoption of the New Urban Agenda (NUA) by UN Habitat in October 2016, and the entry into force of the Paris Agreement on Climate Change in 4 November 2016, represents strong steps toward the immediate implementation of Agenda 2030 for Sustainable Development. Urbanization poses an opportunity for climate change adaptation and mitigation and in order to realize this opportunity, the New Urban Agenda envisages a model where all urban actors adopt and implement disaster risk reduction and management, reduce vulnerability, build resilience and responsiveness to natural and human-made hazards and foster mitigation of and adaptation to climate change [New Urban Agenda, paragraph 13 (g)]. This vision is in line with the shared goals under the Agenda 2030 for Sustainable Development, in particular Goal 11.

In 2010, during the meeting of the Contracting Parties to the Nairobi Convention, the countries of the region approved the Strategic Action Programme (SAP) for the Protection of the Coastal and Marine Environment of the Western Indian Ocean from Land-based Sources and Activities, which was prepared under the auspices of the UNEP-GEF Project on 'Addressing Land-based Activities in the Western Indian Ocean (WIO-LaB)'. The SAP acknowledged that the coastal zone of the region hosts major cities such as Mombasa, Dar es Salaam, Beira, Maputo and Durban, harbours, industries and other development infrastructure that is increasingly posing a threat to the integrity of the coastal and marine ecosystems. This SAP identified key actions that need to be undertaken in the region in order to reverse the degradation of the coastal and marine ecosystems.

The WIO region has taken an active role in progressing a regionally coordinated approach to the implementation of SDGs. The Contracting Parties to the Convention for the Protection, Management and Development of the Marine and Coastal Environment for the Western Indian Ocean Region (Nairobi Convention) agreed during the 8th Conference of Parties (COP8) in 2015 to develop a new work programme for 2018-2022 that incorporates SDGs.

The Nairobi Convention in collaboration with the WIOMSA produced the most comprehensive Regional State of the Coast Report which was approved by the Eighth Meeting of the Contracting Parties to the Nairobi Convention. The Chapter on 'Urbanisation, Coastal Development and Vulnerability, and Catchments' several recommendations of relevance to cities and coasts are made, including:

- **Disaster risk reduction and climate change adaptation must be prioritised in order to better manage extreme events, as well as distinctive slow-onset, semi-permanent changes such as sea-level rise or rising temperatures. Vulnerability and resilience assessments, as well as explicitly human security considerations, are core concerns of disaster risk reduction and climate change adaptation, facing similar challenges;**
- **Promote and undertake research devoted to exploring innovative and cost-effective ways of addressing the climate problem. A focus on the science of adaptation is of particular interest;**
- **Encourage and promote robust urban planning processes that seek to reduce the dichotomy between formal governing institutions and networks of actors that provide local capacities. National urbanization policy frameworks must complement local strategies for changes to be quicker and deeper, and this includes identifying various levers by which action can be triggered and sustained. These actions are likely to be enhanced if good science (including the use of new data, methodologies and models), is used to inform policy;**
- **Reduce the high levels of vulnerability and low adaptive capacity in local governments with poor capacities and resources. Weak local government creates and exacerbates problems including the lack of appropriate regulatory structures and mandates; poor or no planning; lack of or poor data; lack of disaster risk reduction strategies; poor servicing and infrastructure (particularly waste management and drainage); uncontrolled settlement of high-risk areas such as floodplains, wetlands, and coastlines; ecosystem degradation; competing development priorities and timelines; and a lack of coordination among government agencies.**
- **Existing land-use plans in most WIO countries are inadequate or lacking, and in order to update such plans authorities need to identify and establish the environmental baselines to inform appropriate zoning and take into account the onset of climate change. Mechanisms such as coastal development setbacks and development limits must be incorporated into urban planning and building controls.**

  Some specific measures include:
  - **Introducing policy and planning processes to ensure that coastal construction is a safe distance away from the high-water mark, and reinstate natural defence mechanisms with the necessary environmental authorisations;**
  - **Undertaking holistic planning and implementation through the development and implementation of coastal management programmes that incorporate shoreline management plans;**
  - **Establishing a coastal development setback line which is designed to protect both the natural environment from encroachment of buildings as well as protecting beachfront developments from the effects of storms and accelerated coastal erosion;**
  - **Working with nature by protecting the integrity of buffer dune systems, which should be vegetated with appropriate dune species, as per the original natural zones, and maintained;**
  - **Maintaining, or even better, increasing the sand reservoir (volume) stored in the dune system; and,**
  - **Protecting, restoring and maintaining natural systems like mangroves and coral reefs.**
- **Mainstream adaptation options into integrated coastal management and sustainable development plans. There is growing recognition that scientists, policymakers, residents, managers and other key stakeholders must work together to establish a framework for adaptation that is mainstreamed into the current coastal management processes and practices.**
- **Understand and promote the role of UNFCCC National Adaptation Plans (NAPs) to create national frameworks for multi-scale adaptation, national to local, and specifically for coastal cities.**

Draft Decision on Urban Agenda in Coastal Cities of WIO

1. ***Welcome*** **the partnership with UN Habitat to address the environmental challenges and opportunities posed by rapid urbanization and coastal cities in the WIO Region as articulated by Agenda 2030 and SDG 11**
2. ***Request*** **the Secretariat to collaborate with UN Habitat and other Partners to develop a regional action plan and road map to assist the Contracting Parties to integrate the New Urban Agenda in Coastal Cities in the WIO region in the protection of the marine and coastal environment.**
3. ***Urge*** **Contracting Parties to review their urban planning, governance, preparedness and responsiveness with regard to pollution and degradation challenges posed by rapid urbanization and coastal cities in the WIO region.**

Part 3: Sustainable Port Development in the WIO Region

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Background

There has been an increasing pace of large scale developments along coastlines ranging from railways, roads, Oil & Gas, mining activities and ports. This has been necessitated by the fast growing economies of coastal countries as well as those of the landlocked countries. Specifically, the countries of the Western Indian Ocean are expected to enter into a period of rapid economic growth, enabled by their current low baseline, rapid demographic growth and access to new energy sources [1]. (AEO 2015, APP 2015). Ports act as hubs of trade and intermodal systems where road, rail, pipelines and other transport modes meet for purposes of trade enhancement. They therefore form an integral part of current global economic development since seaborne trade actually accounts for about 90% of shipping worldwide. This growing trend together with increasing vessel sizes, and the need to modernize port facilities, are driving urgent investments in ports [2][3]. It is therefore imperative for port developers to keep up with port size and capacity demands. In doing so, there is unavoidable intersection with critical coastal and marine resources with huge potential to compromise the integrity of these resources because the resources are critical for the socio-economic development of the region since the economies are largely natural resource based e.g. tourism, fishing, farming, mining etc. Port development requires the construction of waterways, breakwaters and the port itself [4]. These changes can affect the hydro morphology of the ecosystem and as a consequence could affect ecosystem functioning by habitat loss through development and dredging [5]. Port development activities also impact negatively on our city port, river- and delta ecosystems because port projects are confronted by a growing scarcity of prime locations, increasing environmental constraints, limited space for sustainable expansion, and uncertain impacts of climate and technological change. Clearly, there is a need for innovative solutions for sustainable port development which are in harmony with the ecosystem and which are robust or adaptable under change. Nevertheless, in general, ports that do not aim for sustainability and that impact negatively on the environment could act as a hindrance to the fight against climate change and sustainable trade. Port development will continue to impact on the marine ecosystems unless port capacity and efficiency can be shown to benefit more from sustainable port development than from traditional approaches [5].

The WIO region consisting of Comoros, Kenya, Mauritius, Madagascar, Mozambique, Seychelles, Somalia, United Republic of Tanzania, Republic of South Africa and France still has an enormous potential for growth in the maritime sector through existing port's expansion or through initiation of new port development projects. The region is therefore in a better place to choose the path of sustainability in port development or to continue with the business as usual scenarios in port development which normally, prioritizes short-term growth in profit and wealth creation, powered by fossil fuel extraction and use, with low regulation and inadequate investment to protect environmental and social assets [6]. While some increase in profit may occur in the short term, real wealth decreases due to habitat and species loss along with severe decline in marine gross product. The Business As Usual scenario will also undermine achievement of the UN 2030 Agenda for Sustainable Development. Consequently, the WIO has decided to choose a path of sustainability spearheaded by the Nairobi Convention Secretariat in their bid to develop a sustainable port development document in the region with emphasis to greening port development projects through production of a port development toolkit for green ports based on scenario modelling [7].

Port Development based on Sustainability

Sustainable port development aims to create scenarios for "Ports of the Future" which are green, sustainable and of minimal or no impact to the environment. This can be achieved by looking at port development as an integral and interactive initiative where knowledge on sustainable port development is developed to balance economic growth and welfare in combination with healthy ecosystems. Under this strategy, a look at the blue

Economy Strategies in port's influence area, Innovative Port Governance and Public - Private Partnerships and Integration of Port-City socio-economic and cultural impacts for sustainability are crucial. Synchronization and optimization for more efficient operational processes for improved air quality and environmental friendliness of ports by the establishment of new procedures controlled in real time using advanced IT technologies must be employed. Use of modelling and simulation tools are also integral in green port development scenarios (Scenario Modeling) for improving the operational, environmental and security processes, thus reducing associated risks, time and costs. The result will be a tool kit for Green port Development in the WIO and a Scenario based Green Port Models for the WIO region new port development, existing port upgrade and expansion of ports.

To obtain a port with no-impact on the ecosystem while positively affecting social welfare, the impacts on ecosystem services need to be reduced by decreasing the impact on water quality, wild life/biodiversity and flood protection. However, the impacts depend largely on the location [5]. Eco-engineering solutions should be used to increase flood protection, while air quality should be increased by the combined effect of reduction of inland transportation, electric transportation at the ports and use of renewable energies by other port facilities like the cranes and forklifts. Green ports will benefit from the reduction of (sea) transport costs, reduced inland transport costs and reduced operational expenses. However, since the investment costs may be higher than developing a traditional port, there is need for a proper look at the financial viability. The green port toolkit will aim at providing guidelines for port development with limited impacts on existing ecosystems and maximizing social welfare.

The Nairobi Convention secretariat will employ the services of scenario modelers to come up with models for green ports development in the WIO. This will form part of the Toolkit for Green Port development for the WIO Region which will be recommended for port developers and regional governments.

Draft Decision on Ports and Harbours (MANAGEMENT RESPONSES)

1. **Request the Secretariat in collaboration with IMO, PMAESA and other Partners to undertake a Baseline Study and Scenario Analysis for Port Development and Expansion in the WIO Region and report progress at the next COP.**
2. **Request the Secretariat in collaboration with Partners to develop a toolkit for green port development in the WIO Region and report at the next COP**
3. **Urge Contracting Parties to build and enhance integrated development and management approach and build enabling environment to ensure environmental sustainability of on-going and planned port development projects in their respective countries.**