

# Policy Brief

## Strategic Framework for Coastal & Marine Water Quality Management in WIO Region

### Purpose

The Nairobi Convention is an important regional platform to address challenges facing coastal and marine ecosystems in the Western Indian Ocean (WIO) through catalytic interventions, dialogue and partnerships. The Contracting Parties have agreed, through a highly consultative process, on a suite of national and regional collective actions to address major stresses on the region's coastal and marine environment, including the *Implementation of the Strategic Action Programme for the protection of the Western Indian Ocean from land-based sources and activities* (WIOSAP), *The Western Indian Ocean Large Marine Ecosystems Strategic Action Programme Policy Harmonisation and Institutional Reforms* (WIO LME SAPPHIRE), and *Enforcing Environmental Treaties in African, Caribbean and Pacific (ACP) Countries* (ACP-MEA Phase III). Towards addressing pollution threats, the implementation of appropriate strategic frameworks and capacity building was considered important, not only to enhance local socio-economic and environmental benefits, but also global environmental benefits. A *regional Strategic Framework for Coastal and Marine Water Quality Management (C&MWQM)* was considered a sound basis for adopting and integrating C&MWQM into national frameworks. This is done in two phases - Phase 1: Development of a Strategic Framework for C&MWQM (this project), and Phase 2: Implementation of the Strategic Framework at national and sub-national levels. While there are numerous threats to coastal and marine ecosystems in the WIO region, this project focuses on key problems associated with marine pollution, constituting the primary need for coastal and marine water quality management (C&MWQM).

### Situation Assessment

At the core of C&MWQM is the protection of valuable natural resources, not only to protect biodiversity, but also to protect socio-economic benefits to society. A number of root causes contribute to the deterioration of coastal and marine water quality in the region, including population growth, poverty and inequality, inappropriate governance, inadequate knowledge and awareness, and lack of financial resources. While these root causes characterise the indirect, underpinning societal dynamics causing ecosystem deterioration, the major sectors contributing directly to marine pollution include urban development and tourism, agriculture and forestry, fisheries and aquaculture, industry and mining, marine transportation and energy production. These introduce numerous pollutants leading to microbiological contamination, nutrient enrichment (eutrophication), marine litter, suspended sediment loading and toxic pollution (e.g. metals, agrochemicals and petrochemicals), which contribute to an array of environmental impacts and socio-economic consequences.

At the regional level, Strategic Objectives and Targets pertaining to C&MWQM were defined in the WIOSAP project (UNEP/Nairobi Convention Secretariat 2009) and are now adopted into a formal *Protocol on Land-Based Sources and Activities (LBSA) in support of the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region* (UNEP 2010). In 2010, a joint Transboundary Diagnostic Assessment and Strategic Programme of Action was also undertaken under ASCLME and SWIOFP dealing with issues not covered under WIOSAP, leading to the *SAP for Sustainable Management of WIO Large Marine Ecosystems* (SAP WIO-LME) (ACSLME et al. 2014). At the national level, most countries are signatories to the main international conventions and agreements pertaining to the combating of marine pollution, and have some form of legislation in place to control and manage marine pollution. However, dedicated initiatives focusing on C&MWQM are limited, and where policies and plans have been put in place, implementation remains a major challenge. While numerous root causes will have to be addressed to achieve effective C&MWQM,

a number of key measures can be undertaken to improve matters. For example, more holistic, ecosystem-based approaches, rather than fragmented, silo-based approaches which are currently applied in most countries, can be implemented. Silo-based management hampers coordinated C&MWQM and impairs, and often confuses policy decision-making and management intervention. Contracting Parties, therefore, urged the Secretariat to develop a regional Strategic Framework for C&MWQM to fast-track coordinated implementation, building on previous initiatives undertaken as part of the WIO-LaB Programme of the LBSA Protocol (e.g. UNEP et al. 2009a; UNEP et al. 2009b).

## Proposed Strategic Framework for C&MWQM

In essence, the need for C&MWQM stems from a tension between the need to protect biodiversity (and associated socio-economic benefits) and the need for economic development in sectors which may contribute to sources of marine pollution. A Strategic Framework as conceptualised in Figure 1 will provide direction in achieving effective C&MWQM.

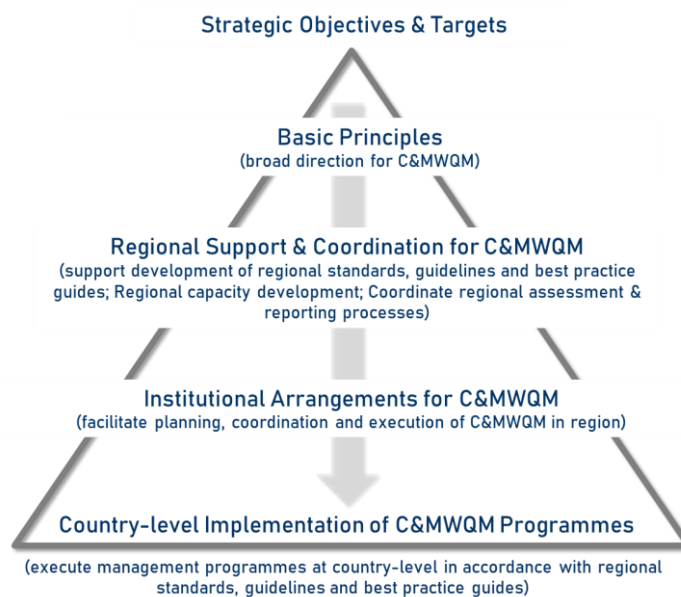


Figure 1 Conceptualisation of the Strategic framework for C&MWQM in WIO region

C&MWQM starts with establishment Strategic Objectives and Targets. The (UNEP/Nairobi Convention Secretariat 2009) sets the following Strategic Objective for water quality in the WIO region, to be achieved in an array of specific targets:

**'Water quality in the WIO region meets international standards by year 2035'**

Basic Principles provide broad direction within which to position implementation of C&MWQM. Five basic principles are recommended for the WIO region, namely:

- Principle 1: Pollution prevention, waste minimisation and precautionary approach
- Principle 2: Receiving water quality objectives approach
- Principle 3: Integrated, adaptive assessment approach
- Principle 4: Polluter pays principle
- Principle 5: Participatory approach.

Harmonisation of C&MWQM in the WIO region requires Regional Support and Coordination (e.g. through the Nairobi Convention Secretariat and partners), for example by coordinating the development of regional standards, guidelines and best practice guides to assist in the development of regional capacity, and regional reporting processes.

Reflecting on the Strategic Objectives and Targets of the WIOSAP (UNEP/Nairobi Convention Secretariat 2009) and the SAP WIO-LME (ACSLME et al. 2014), a number of regional standards, guidelines and best practice guides, as well as other support efforts, relevant to C&MWQM have been identified, including:

- Regional standards for coastal and marine water quality
- Regional effluent discharge standards to facilitate harmonized approach across region
- Regional best practice framework models for municipal wastewater management
- Oversee adoption of Cleaner Production Technologies by industries at national-level
- Regional guidelines on oil spill contingency planning for inclusion in concession agreements
- Coordinate establishment of regional support structure for oil spill disaster management
- Establish regional capacity building programmes on oil spill contingency planning.

To date Regional-level achievements supporting C&MWQM include:

- Land Based Sources and Activities (LBSA) Protocol of the Convention (UNEP 2010)
- WIO Action Plan on Marine Litter (UN Environment 2018)
- African Marine Litter Monitoring Manual (African Marine Waste Network, Sustainable Seas Trust (Barnardo and Ribbink 2020)
- WIO Marine Highway development and Coastal and Marine Contamination Prevention Project (2020)
- Regional oil spill preparedness in eastern Africa and WIO (UNEP et al. 2020a&b).

Regional State of the Coast Reporting (UNEP et al. 2015), as required by the Nairobi Convention, has also been undertaken, under the guidance of the Western Indian Ocean Marine Sciences Association (WIOMSA) in consultation with the Contracting Parties in terms of the political agendas. Ideally, in the case of future regional status reports, regional coordinators will be able to draw on national-level status reports produced as part of their C&MWQM implementation programmes.

Also critical in a strategic framework is the early establishment of appropriate Institutional Arrangements to facilitate and coordinate implementation across regional, national and hotspot-scales (Figure 2).

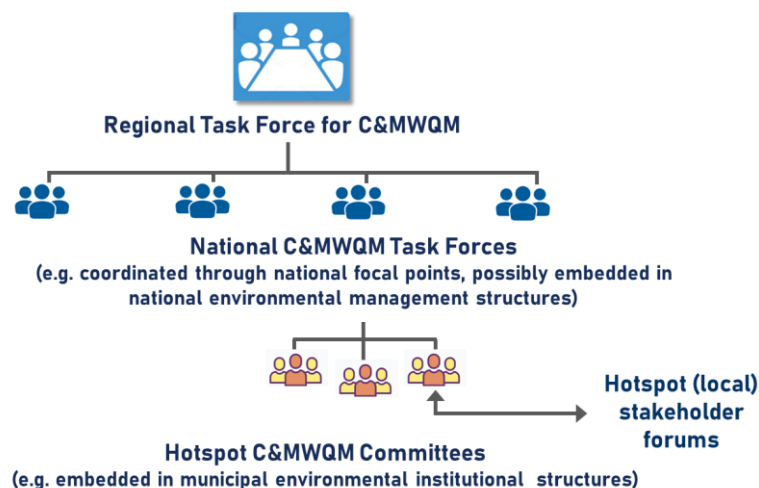


Figure 2 Proposed institutional arrangements to facilitate and coordinate implementation of C&MWQM in WIO region

At regional scale, the Regional Task Force (RTF) for Water, Sediment and Biota Quality has been established under the WIOSAP project. This provides an ideal platform for regional coordination in the future. However, oversight and coordination within countries also will require national structures (e.g. National Task Forces), preferable coordinated through national focal points to facilitate alignment with the RTF. National Task Forces (NTFs) need to be cross-sectoral, comprising not only of environmental authorities, but also other authorities, such as urban development and tourism, agriculture, aquaculture and forestry, industry and mining, marine transportation and energy production. In turn, effective

planning and implementation at the local (or hotspot) level needs local management. Dedicated local C&MWQM institutions are ideally positioned to test the effectiveness and applicability of regional and national legislation and policies, and should be utilised by higher tiers of government as a mechanism incremental improvement policies, supporting the principle of adaptive management. In the spirit of *Principle 5: Participatory approach*, stakeholder collaboration is also essential. Therefore, stakeholder forums have proven to be great platforms through which to facilitate a participatory approach to decision-making and implementation.

The Implementation of C&MWQM Programmes primarily happens at country-level in marine pollution hotspots, ideally in accordance with regional policies, coordinated through the RTF, NTFs and Hotspot C&MWQM committees, and in consultation with local stakeholder forums. Drawing on an existing model for Integrated Coastal Management (the broader domain within which C&MEQM is nested) an *ecosystem-based Implementation Framework for C&MWQM* is proposed for the region (Figure 3).

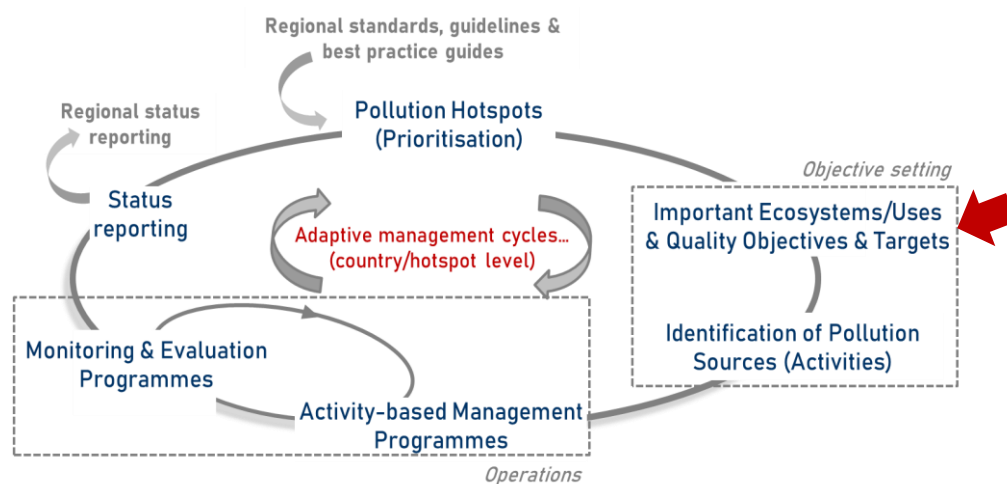


Figure 3 Ecosystem-based Implementation Framework for C&MWQM in WIO region, also showing context of Guidelines for setting sediment and water quality targets

To use human and financial resources wisely, it is best to tackle C&MWQM in a phased approach. The identification of marine pollution hotspots or emerging hotspots provides a transparent mechanism to prioritise study areas most at risk or impacted by marine pollution. Marine pollution hotspots usually occur in coastal urban centres (or cities) and near coastal industrial nodes (e.g. UNEP et al. 2009a, UNEP et al. 2015). The identification and mapping of important ecosystems, and key socio-economic beneficial uses, and identification of appropriate environmental quality objectives and targets are key components in a C&MWQM programme. Internationally, beneficial uses, in terms of water and sediment quality, are typically divided into four broad categories, i) Protection of aquatic ecosystems; ii) Recreational use (including tourism); iii) Marine aquaculture (including the collection of seafood for human consumption); and iv) Industrial uses (e.g. intakes for desalination, cooling water intake and seafood processing). *Guidelines for Setting Water and Sediment Quality Targets for Coastal and Marine areas in the WIO region* can be used to derive water and sediment quality targets (QTs). Selected water and sediment quality constituents, as well as their relevance to the protection of aquatic ecosystems and other beneficial uses are indicated Table 1. A participatory process (*Principle 5: Participatory approach*) is important in the negotiation of these QTs as the livelihoods of local communities, as well as local economies may be affected. The aim is to negotiate and achieve a balanced outcome that is both environmentally and socio-economically sustainable through an integrated, consultative process (*Principle 3: Integrated assessment process*).

Another key component is the identification and characterisation of potential marine pollution sources (both land-based and sea-based) that may alter water and sediment quality. In setting limits for

pollution sources, a hierarchy of decision-making, as advocated by *Principle 1: Pollution prevention, waste minimisation and precautionary approach*, should be applied.

Table 1 Summary of constituent types for which QTs are addressed in the guidelines, as well as relevance to broad categories of beneficial uses

TYPE OF CONTITUENT		PROTECTION OF AQUATIC ECOSYSTEM	RECREATION	MARINE AQUACULTURE	INDUSTRIAL USE
Water	Objectionable matter	●	●	Similar to Protection of Aquatic Ecosystems	Based on site-specific requirements of industries
	Physico-chemical properties	●	Refer to Drinking water guidelines		
	Nutrients	●		●	
	Toxicants	●	●		
	Microbiological indicators		●		
Tainting substances			●		
Sediment	Toxicants	●		Similar to Protection of Aquatic Ecosystems	

Activity-based management programmes, involve effective operation of activities potentially contributing to marine pollution. These programmes often show a strong sectoral focus (i.e. activities are managed by different governing authorities through activity-specific statutory systems). However, even though sector-based, these programmes remain nested in an ecosystem-based approach subservient to the agreed environmental quality objectives and targets for the study area (Figure 3). Importantly, the cost of managing and controlling such activities should follow the *Principle 4: Polluter pay principle*. The design and implementation of monitoring and evaluation programmes are also integral elements in the operational phase. However, in C&MWQM these programmes are a means to an end, providing the data and information needed to inform activity-based management intervention (*Principle 3: Integrated, adaptive assessment process*), as is illustrated in Figure 3 above by the feedback loop to activity-based management programmes. The data and information from these programmes also continuously renew understanding of the complexities of marine ecosystems and their uses, and so inform status assessments. In support of a transparent, participatory process (*Principle 5: Participatory approach*) findings from these programmes need to be communicated and shared with the broader society. Status reporting provides a mechanism for such feed-back giving a high-level reflection on progress, but also ensures transparency on issues of concern to be addressed in future (i.e. improving-by-learning, *Principle 3: Integrated, adaptive assessment process*). National status reports, in turn, can feed into overarching regional status reporting (e.g. WIO State-of-Coast Report). Although the Implementation Framework for C&MWQM is largely executed at the country-level (e.g. at selected hotspot), it requires overarching support and guidance from the regional level, highlighting the importance of regional strategies.

Also important is the acknowledgement of linkages between C&MWQM implementation and other initiatives in the WIO region. While the Implementation Framework has unique elements specifically pertaining to the effective implementation of C&MWQM, elements within the framework are aligned with other, complimentary strategies and frameworks implemented in the WIO region (Figure 4). For example, the demarcation of important ecosystems/uses and locations of activities contributing to marine pollution need to be coordinated with outcomes from the marine spatial planning strategy, and should in turn align with biodiversity, conservation and fisheries strategies in terms of zoning. Furthermore, outputs from monitoring and evaluation programmes can contribute to the regional ecosystem monitoring framework, in addition to informing C&MWQM actions and intervention. The implementation of C&MWQM, therefore, should acknowledge these linkages and operations and be coordinated wisely to prevent unnecessary duplication of effort.

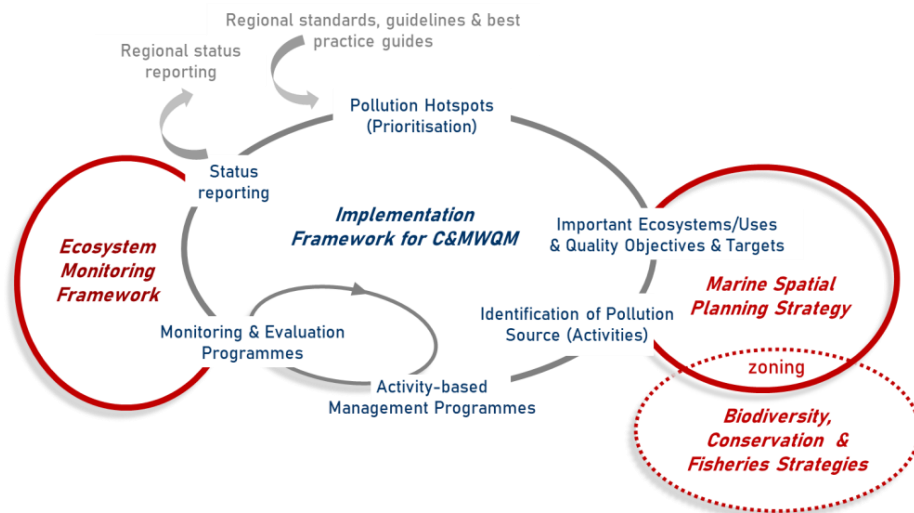


Figure 4 Alignment of elements in Implementation Framework for C&MWQM with other related strategies and frameworks within WIO region

## Policy Recommendations

Towards initiating the effective operationalisation of C&MWQM in WIO region, the following policy recommendations are proposed for consideration by the Contracting Parties:

- Contracting Parties adopt the Strategic Framework for C&MWQM for the WIO region, including the *Guidelines for Setting Water and Sediment Quality Targets for Coastal and Marine areas*.
- Contracting Parties formally establish a Regional Task Force (RTF) for C&MWQM (which is currently a project-level task force under the WIOSAP – RTF for Water, Sediment and Biota Quality).
- Contracting Parties establish national C&MWQM Task Forces to facilitate and coordinate C&MWQM at country-level, feeding into the RTF through national focal points.
- Contracting Parties adopt, as appropriate, the Strategic Framework for C&MWQM at country-level, including the *Guidelines for Setting Water and Sediment Quality Targets for Coastal and Marine areas*.
- Established national C&MWQM Task Forces to coordinate the identification of country-level hotspots, as well as the establishment of local C&MWQM committees to oversee the execution of 'hotspot' implementation programme.
- Established national C&MWQM Task Forces coordinate the compilation of country-level status reports that would feed into overarching regional status reports - coordinated by the RTF - to inform various regional processes (e.g. WIO State-of-Coast reporting, Ecosystem Monitoring Strategies).

The following technical recommendation is proposed for consideration by the Contracting Parties in support of effective operationalisation of the Strategic Framework:

- The Nairobi Secretariat work with partners to support capacity building programmes in support of the effective implementation of the Strategic Framework for C&MWQM, including the *Guidelines for the setting of Water and Sediment Quality Targets*.

Ultimately, the achievement of the Strategic Objectives set for coastal and marine water quality in the WIO region - *Water quality in the WIO region meets international standards by year 2035* - will rely on countries embracing this Strategic Framework for C&MWQM and adopting the proposed implementation into national policy and best practice, as appropriate. It will also require political commitment to assist in securing dedicated financial resources and the skilled personnel required in the execution of C&MWQM programmes.

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