
TOWARDS THE DEVELOPMENT OF A MARINE SPATIAL PLANNING STRATEGY FOR THE WESTERN INDIAN OCEAN REGION: SITUATIONAL REPORT

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This report constitutes a preliminary assessment of the context of MSP at a national and regional level in the Western Indian Ocean (WIO), with a situational report on key challenges in the WIO, the status and opportunities for MSP, latest updates towards MSP implementation and the identification of knowledge and data gaps and priorities.

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ACRONYM LIST	
ABNJ	Areas Beyond National Jurisdiction
ASCLME	Agulhas and Somali Current Large Marine Ecosystems Project
AU	African Union
CCA	Causal chain analysis
CLA	coastal livelihoods assessment
CLD	Causal loop diagram
CORDIO	Coastal Oceans Research and Development – Indian Ocean
DPSIR	Drivers Pressures State Impacts and Response
EEZ	Exclusive Economic Zone
GEF	Global Environment Facility
HDI	Human Development Index
ICZM	Integrated Coastal Zone Management
IOC	Indian Ocean Commission
IUCN	International Union for the Conservation of Nature
IUU	Illegal, unregulated, and unreported (fishing)
LMEs	Large Marine Ecosystems
MARISMA	Marine Spatial Management and Governance Programme
MEDAs	Marine Ecosystem Diagnostic Analyses
MPA	Marine Protected Area
MSP	Marine Spatial Planning
OGSA	Ocean Governance Strategy for Africa
SDG	Sustainable Development Goals
SIDA	Swedish International Development Cooperation Agency
SWIOFC	South West Indian Ocean Fisheries Commission
TDA	Transboundary Diagnostic Analysis
TNC	The Nature Conservancy
TWG	Technical Working Group
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commissions for Africa
UNEP	United Nations Environment Program
WIO	Western Indian Ocean
WIOMER	Western Indian Ocean Marine Ecoregion
WIOMSA	Western Indian Ocean Marine Science Association
WIOSEA	Western Indian Ocean Sustainable Ecosystem Alliance

1 Introduction

1.1 Marine spatial planning for a sustainable Blue Economy in the Western Indian Ocean

The value of the global ocean-based economy is estimated to be between 3-6 trillion USD/year, while more than 3 billion people rely on the oceans for their livelihoods. Effective and sustainable governance of the global ocean is therefore essential to achieving a balance between the growth and development of the ocean economy and maintaining its health and productivity (Nairobi Convention, 2019). As with other regions across the globe, healthy functioning ecosystems also underpins the ocean economy of the Western Indian Ocean (WIO). However, the delivery of services from WIO ecosystems will be threatened if current pressures on the ocean are not effectively managed and alleviated (Obura et al., 2017).

In 2017, Obura et al. (2017) estimated the annual “gross marine product” (equivalent to a country’s annual gross domestic product) of the WIO region to be at least USD20.8 billion. Whereas the total “ocean asset base” of the WIO region was estimated to be at least US\$333.8 billion. Realising the value and importance of the ocean’s natural capital (Obura et al., 2015), the WIO countries are undergoing rapid economic diversification and transformation by utilizing the vast coastal and marine ecosystem goods and services. While agriculture, tourism and fisheries continue to be the mainstay in WIO economies, new sectors such as oil and gas, and coal, mineral, and sand mining concessions are increasing in the region (ASCLME/SWIOPF, 2012a). The expansion of these new economic sectors provides new and tempting sources of foreign revenue. Hence, the Economic Commission for Africa (ECA) Sub-regional Office for Eastern Africa (SRO-EA) held its 19th session of the Intergovernmental Committee of Experts (ICE) on 2–5 March 2015, in Antananarivo, Madagascar, on the theme “Harnessing the Blue Economy for the development of Eastern Africa”. The meeting urged countries in Africa to mainstream the Blue Economy (BE) into their national and regional development plans, where applicable (UNECA, 2016).

The concept of BE originated from the United Nations Conference on Sustainable Development held in Rio de Janeiro in 2012 (UNCTAD, 2014). Details of the BE and its relevance to the WIO region are provided in Kelleher (2015), Nairobi Convention Secretariat, WIOMSA and CSIR (2017) and Hassan and Ashraf (2019). In line with the BE concept, two decisions were made at the 9th Conference of the Parties (COP) of the Nairobi Convention, which refers to “Blue Growth” in the WIO:

- Decision CP9/6.1: To urge the contracting parties to work with regional economic communities, regional fisheries management organizations to implement the Cairo Declaration on Managing Africa’s Natural Capital for Sustainable Development and Poverty Eradication..., the 2050 Africa Integrated Maritime Strategy and the Agenda 2063 on ecosystem-based management approaches for marine resources in the exclusive economic zones and adjacent waters.
- Decision CP.9/13.2: To agree to establish additional partnerships, including with regional economic communities, EAC, COMESA, SADC and IOC.

Development of the BE in Africa aligns closely with the African Union (AU) 2050 African Integrated Maritime Strategy (AIMS 2050) and the African Union Agenda 2063 – The Africa we want. In particular, Goal 6 of the agenda specifies that “Africa’s Blue/ocean economy, shall be a major contributor to continental growth and transformation through (1) Sustainable exploitation of marine resources and energy and, (2) Streamlining of port operations and aquatic transport. Furthermore, Goal 7 of the strategy recommends sustainable use of resources through natural resource management and biodiversity conservation. The African Union also recognises the challenges (e.g. illegal fishing, pollution and piracy) that are faced by its member states in realising the full potential from the ocean economy. Therefore, a clear vision for the continent towards the development of an inclusive and sustainable economy was established, through the Africa Blue Economy Strategy (AU-IBAR, 2019).

The United Nations 2030 Agenda which sets out the Sustainable Development Goals (SDGs) recently agreed by the international community, including goal 14 on sustainable ocean use, also provides a pathway toward a better future for the countries and communities of the WIO. However, when development of the ocean economy is coupled with a high proportion of the coastal population dependent on subsistence living, and a low capacity to plan and manage existing internal demands, there will invariably be an increase in conflicts between existing and new resource users in the coastal zone. Marine spatial planning (MSP) is becoming increasingly popular as a public process of analysing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process.

1.2 Rationale for a regional MSP strategy in the WIO

1.2.1 The need for MSP in the WIO

At the Eighth COP (COP8) held in Seychelles in 2015, Contracting Parties to the Nairobi Convention agreed to cooperate in improving the governance of areas beyond national jurisdiction, build on existing regional institutions, and develop area-based management tools, including MSP, to promote the blue economy pathways in the region (Decision COP8/10.4). More recently at the Ninth COP 9 held in 2018 in Kenya, the Contracting Parties adopted a stand-alone decision on MSP that further elaborated on earlier commitments as follows:

Decision CP.9/10: MSP for the blue and ocean economy

1. To urge Contracting Parties to continue to advance blue or ocean economy approaches in the context of Sustainable Development Goal 14 as pathways for sustained incomes and economic benefits from natural blue capital, including fisheries, tourism, oil and gas development, offshore renewable energy and other maritime activities;
2. To urge the Contracting Parties, within the framework of the United Nations Convention on the Law of the Sea, to cooperate with existing regional institutions on ocean governance and the conservation of marine biodiversity in adjacent areas beyond national jurisdiction, to build and develop area-based management tools, such as marine spatial planning, to promote blue economy pathways in the Western Indian Ocean region;
3. To request the Secretariat, in collaboration with partners, to develop capacity-building programmes on marine spatial planning as a tool for sustainable economic growth;
4. To request the secretariat, in collaboration with partners, to prepare a report on the feasibility, options and scenarios for the establishment of marine protected areas in areas beyond national jurisdiction and to report thereon at the next Conference of Parties.

In addition, Decision CP.9/1.2 also includes MSP as one of the priority areas of the Nairobi Convention Work Programme 2018-2022. Hence, MSP is also a key deliverable and output of ongoing regional projects such as the Strategic Action Programme for the protection of the Western Indian Ocean from land-based sources and activities (WIOSAP), and Western Indian Ocean Strategic Action Programme Policy Harmonization and Institutional Reforms (SAPPHIRE) funded by the Global Environment Facility (GEF) (Nairobi Convention, 2020). The need to strengthen ocean governance in the WIO and to apply MSP as a tool for achieving the Aichi Biodiversity Targets and the SDGs was expressed by the Nairobi

Convention at a regional capacity building workshop, held in Kenya in 2018. It was acknowledged that “MSP is showing great promise if built on a foundation of reliable information, coupled with appropriately (multi-)scaled governance and institutions. MSP is useful to mitigate multi-sectoral stakeholder conflict, at multiple levels of coastal and ocean governance” (Nairobi Convention, 2018). Lastly, the need for a regional MSP strategy was emphasized by the Parties to the Nairobi Convention (NC) and partners at a meeting to discuss MSP in the WIO held in Dar es Salaam in March 2019. Here, the Nairobi Convention Secretariat (NCS) was requested to work with partners to develop a regional strategy. This request is in line with major outcomes of the SAPPHIRE and WIOSAP Projects and recognizes that a regional MSP strategy is vital to harmonize the different initiatives in the countries of the WIO region.

Some of the WIO countries have developed and adopted MSP approaches for different purposes, and are currently at different stages of implementation. For example, Seychelles and South Africa have adopted MSP processes and are nearly finished developing spatial management plans; whereas, Kenya (initiated county-level MSP) and Tanzania have undertaken governance reviews and initiated mapping activities to facilitate adoption of MSP.

Although some of the WIO countries have progressed to implement MSP and develop spatial management plans, different coastal and marine economic sectors are still being managed individually, resulting in lack of coordination in decisions and actions that negatively impact coastal and marine ecosystem goods and services. It is important to apply a harmonized approach in the development of coastal areas and utilization of coastal and marine resources and space among all the competing needs and associated stakeholders. To achieve this, a regional approach to MSP can have added benefits by applying a broader perspective to some of the challenges associated with marine and coastal governance. A regional context provides an opportunity for joint learning, improved cooperation, and capacity building to support implementation of MSP across the WIO region more consistently. A regional strategy will aim to harmonise policy and legislative structures towards common goals and objectives of an ecosystem-based approach to ocean management. A regional approach will provide a coordinated structure for knowledge and data sharing, incorporate broad stakeholder engagement and increase communication and collaboration with relevant organisations in the region. The regional MSP strategy will provide guidelines to achieve these overarching goals; however, successful implementation of sustainable development and planning will still rely heavily on the countries’ ability to implement MSP in their national context.

Management strategies and plans are not static in a changing world. Hence, a systems thinking and dynamic approach is needed in planning processes, because ecosystems are influenced by different governance factors in and between the ten countries in the WIO. Using a systems dynamics approach in planning processes can help articulate problems and a hypothesis that specific management tools and plans could address. By describing a problem and the scope of the problem that affects a system of interest, planners could develop mental models that can explicitly describe a system and its attributes. These mental models often include mapping key system attributes, which includes ecological, institutional, social, and economic variables, to create systems diagrams. These diagrams not only explicitly describe the attributes within the problem space, but also the causal relationships of the different system attributes.

Another benefit of using a systems thinking and dynamics approach is that it can consider the roles and impacts of time, area and scale on decision-making. Decisions made for a given area at a given time will have impacts (positive or negative) across space and time in the future. Therefore, novel systems thinking approaches will help to identify these complexities and demonstrate the relationship between them, which is key to adopting MSP in the WIO region. A systems approach will also allow the development of different policy scenarios for the region, and illustrate links and interactions between the different policies (for example, positive or negative, reinforcing or balancing).

Development of a regional MSP strategy will not focus on providing solutions but will allow users to articulate desired scenarios for their country and for the region, and to understand how a regional MSP strategy can assist them to achieve their desired scenarios for effective management of the marine and coastal resources. The MSP strategy will serve as a guiding document that can assist regional and national implementation of ocean governance systems and mechanisms. Achieving regional and international goals and overall ocean sustainability will depend on effective implementation of the MSP strategy (among others) and activities in the region.

1.2.2 Key challenges of MSP implementation

At a regional workshop on harmonising MSP practices to accelerate the implementation of WIO region strategic action programme (Convened by the Nairobi Convention in Dar es Salaam March 2019), key challenges and issues were identified by WIO country representatives (see text box 1 for a summary). For example, a representative from Mauritius identified consensus and mutual agreement amongst stakeholders, lack of adequate data (and data sharing acknowledged by other countries), the vastness of the Exclusive Economic Zone (EEZ), the need to upgrade the legal and regulatory framework, and considerations in management of Areas Beyond National Jurisdiction (ABNJ) as some of the main challenges for MSP in their country. Other challenges identified included the availability or mobilizing of finances for effective planning, conflicts among various users of the ocean space, inadequate methods for evaluation and monitoring of MSP actions

Text Box 1: Key Challenges

- ◆ Data availability and data sharing to make decisions (including harmonised methods and monitoring protocols)
- ◆ Stakeholder agreement and consensus
- ◆ Outdated legal/regulatory frameworks
- ◆ Capacity
- ◆ Mobilisation of funds
- ◆ Conflicts among users
- ◆ Monitoring & Evaluation lacking
- ◆ Integration of social and natural systems

and activities, limited access to funds, limited capacity (technical and human resource) and expertise and the lack of regional alignment with other MSP processes. Other broad challenges that were identified from the workshop included the incorporation of MSP in an already existing marine governance system, coordination of different time schedules, cooperation between sovereign nations with various domestic targets, goals, priorities and interests, different planning systems (from strategic and guiding to detailed and binding), lack of adequate alignment of data and information, and unresolved border issues. Some objectives of MSP implementation included:

- Visionary and future-oriented plans with the existing conditions (ongoing management and legal conditions),
- Development and anchoring of a new planning system,
- Designing documents in an easily understandable way to describe complex relationships
- Successful communication of implications and consequences of the plans which is crucial for MSP to serve as a basis for political decisions

- Development of impact assessments for strategic planning at a national, cross-border and international scale with major uncertainties
- Assessment of both local effects and potential impacts at a wide geographical scale
- System analysis on impacts on land or in the sea
- Designing true reference alternatives and explaining and capturing spatial aspects of MSP considering environmental impacts that come from land.

The meeting on Area Based Planning Tools and Regional Cooperation for the Implementation of the 2030 Agenda was held in Mahe, Seychelles on 13-14 October 2016 by the Secretariat for the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean region in collaboration with the United Nations Environment Programme's World Conservation Monitoring Centre (UNEP WCMC) as part of the implementation of the project on Sustainable fisheries Management and Biodiversity Conservation of Deep-sea Living Resources and Ecosystems in ABNJ. The session of the workshop that dealt with regional cooperation was organized by the Nairobi Convention Secretariat in collaboration with the Institute of Advanced Sustainability Studies (IASS), Institute of Sustainable Development and International Relations (IDDRI), German Corporation for International Cooperation (GIZ) and the Federal Ministry for Economic Cooperation and Development (BMZ). Some key challenges regarding MSP implementation were identified by participants: (i) lack of political will to drive MSP, (ii) lack of understanding of the benefits of MSP for the countries, (iii) data gaps on MSP, (iv) the need for a critical mass of people with knowledge of MSP to drive the process, (v) lack of capacity to implement MSP, and (vi) lack of a clear vision on the connectivity between implementation of SDG 14 and MSP in the region.

Another one of the key challenges for implementing MSP as a tool for marine conservation is the integration of different scales of ecological and social systems (Lagabrielle et al., 2018). For example, there is a need to harmonise regional MSP with both country MSP initiatives and other regional projects, strategies and economic agendas. Furthermore, there is a need to harmonise MSP with ICZM plans and ongoing governance strategies in ABNJ. It is also important to note that MSP is only one possible tool for ocean governance, and thus should be integrated with other mechanisms already in place, which is also challenging.

1.2.3 Development of a regional MSP strategy

In response to the above, and the significant progress made in the WIO with regards to building capacity for and awareness of MSP initiatives for WIO member states, the Nairobi Convention has commissioned Nelson Mandela University, in collaboration with the WIO MSP Technical Working Group (MSP TWG) established under the Convention, and a broad stakeholder group, to develop a regional MSP strategy for the WIO. The development of this strategy builds on the work by the Nairobi Convention Secretariat, WIOMSA and CSIR (2017) and Nairobi Convention (2020). These documents provide the background and context of the blue economy and MSP in the WIO and reported on regional progress towards policy development and MSP initiatives in the region. Nairobi Convention (2020) provided key considerations for implementing and advancing MSP in the WIO, including recommendations for regional cooperation and capacity development.

1.3 Purpose of the report and methodology

The purpose of this report is to provide a preliminary situational assessment, including background, context and knowledge, to inform the development of a regional MSP strategy (as discussed previously). The authors acknowledge that this report will not be exhaustive, but will identify the current status and challenges towards MSP implementation in the WIO and will report on the latest updates on MSP activities, policy development and opportunities for MSP in the region. This will include a non-exhaustive summary of the institutional arrangements in the WIO (as a preliminary stakeholder assessment), projects involved in MSP in the region, the availability of data, knowledge and literature. From this, the report will identify WIO strengths, opportunities and information not readily or easily available pertinent to the development of the MSP strategy for the region.

The methods used to create this report included a thorough review of relevant published literature, reports and other grey literature and content analysis of documents related to marine and coastal activities in the WIO. Limited stakeholder engagement was conducted to gather information on the latest progress related to MSP in selected WIO countries. Stakeholder engagement was conducted on an *ad hoc* basis, where individual stakeholders were identified from the IMBeR MSP workshop and from previously published reports. A preliminary stakeholder assessment, including high-level institutions and projects in the WIO, was conducted for this report. This list has been sent to the MSP TWG for review. A formal stakeholder invitation (for engagement and inclusion in the MSP strategy

development) has also been sent to a preliminary list of key stakeholders in the region. Stakeholder identification and engagement will be on-going throughout the development of the MSP strategy (see further details in section 2.6). The authors made every attempt to include all relevant information in the first draft of the situational assessment. Research, content assessment, limited stakeholder engagement and country perceptions were included where possible. However, any omissions are not intentional, and this report should be seen as a living document and only provides information on the status quo.

Some of the key documents that were used and cited in this report include the Nairobi Convention Secretariat, WIOMSA and CSIR (2017) and Nairobi Convention (2020). Furthermore, the UNDP/GEF Agulhas and Somali Current Large Marine Ecosystems Project (ASCLME) (2008-2012) was initiated to support countries in the WIO region to apply an ecosystem approach to managing large marine ecosystems in the region. The main objectives of the project were to clearly define the ecosystem boundaries, understand the major transboundary impacts within these ecosystems (through Transboundary Diagnostic Analyses) and develop a Strategic Action Programme for effective management and governance of these ecosystems (ASCLME/SWIOFP 2012). A large part of the project was to collect baseline data for the WIO region to identify the main impacts on societies, vulnerable species and marine ecosystems. This information was used to develop a transboundary diagnostic analysis (TDA) for the region, with the intention to improve the management (among others) of large marine ecosystems (LMEs) in the WIO. Experts from each of the nine countries from the WIO region produced a marine ecosystem diagnostic analysis (MEDA) for their country, which informed the TDA (ASCLME/SWIOFP, 2012a, 2012b). The MEDA reports and the TDA were consulted and used extensively for this situational assessment. Other key projects that were used to inform this report are provided in the Appendix (Table A3). Reference to these key documents and projects are made throughout this situational report.

The SAPPHIRE Project builds on the previous work completed under the UNDP-supported GEF-financed ASCLME project, in close collaboration with many partners. The TDA undertaken by the countries of the WIO region with the joint support of ASCLME and SWIOFP Projects provided a scientific and technical synthesis report on the status of the ASCLMEs. The synthesis presented in the TDA was used to develop a Strategic Action Programme (SAP) to address the problems of greatest concern that are facing the marine and coastal ecosystems of the WIO region. In line with this, the SAPPHIRE project is designed to implement the priorities set in the WIO large marine ecosystem's SAP. Both the SAPPHIRE and

WIOSAP Projects will support and promote the use of MSP approaches in the WIO region, in combination with addressing management needs from local to regional scales.

2 Status, challenges and opportunities for MSP in the Western Indian Ocean

2.1 Current status in the WIO

2.1.1 Economic status and development priorities

International development institutions recognise the importance of understanding economic development priorities to enable the use and implementation of MSP. This is because the economic development priorities could influence a government's ability and capacity to implement MSP, because certain sectors will be preferred or will have a stronger influence on planning processes. Moreover, governance factors – such as government accountability, transparency, and security, can also influence economic development priorities and ability to attract and maintain foreign investments and donor support. Less effective and corrupt governments are unlikely to have accountability and transparency mechanisms, which are unfavourable to foreign investors and donor organisations.

As an effort to describe the economic status and expected regional development in the future of African countries, the OECD, African Development Bank, UNDP and UNECA, publishes an annual African Economic Outlook report (AEO, 2015). Whilst broad and not specific to coastal countries in the WIO, the annual report alludes to the importance of understanding the economic status, governance challenges and opportunities for growth and development in Africa. The African Economic Outlook outlines some of the broad economic and governance indicators that can influence the development of MSP in the WIO.

To describe the economic status of the WIO region, several project reports and World Bank indices were collated. These reports include the transboundary diagnostic analysis of the ASCLME/ SWIOFP, Kelleher (2015) report, among others. The TDA linked to the ASCLME/SWIOFP projects was based on MEDA reports for each of the countries in the WIO region. Part of these reports included a socioeconomic analysis through a coastal livelihoods assessment (ASCLME/SWIOFP, 2012a). The Kelleher (2015) report aimed to provide an overview and development framework of the WIO BE, and it used the World Bank governance indicators to describe a government's ability and capacity to rule and manage its officials and constituents and adapt to different situations. These reports describe the

dominant economic sectors in the WIO, and governance standings of each WIO nation that could affect economic standing. These factors coupled with UN Development indices were used to present the challenges and opportunities for MSP implementation in the region.

The TDA showed the importance and reliance of the WIO countries on coastal and marine ecosystem goods and services. The TDA also identified tourism, fisheries, coastal agriculture, mining, mariculture and ports and coastal transport as the main sectors contributing to coastal livelihoods in the WIO region, across all countries (Figure 1). The country-level analyses also showed that fisheries was the most dominant sector in Comoros, Madagascar, and Seychelles. Whereas, Kenya, Mauritius and Tanzania were mostly dependent on the tourism sector, and Mozambique and Somalia were highly dependent on agriculture and forestry. The most dominant sector in South Africa's economy was tourism, but this was closely followed by ports and marine transport, and mining and energy indicating a diverse economy (Table 1) (ASCLME/ SWIOFP, 2012a). Furthermore, regarding sector-specific status, a detailed cost-benefit analysis was conducted for fisheries in the WIO region, with additional assessments linked to the main contributing sectors in the WIO (see Figure 1). The country-specific MEDA reports provide a detailed section on the status of small-scale fisheries, in addition to the other five sectors identified in the region (ASCLME/ SWIOFP, 2012a).

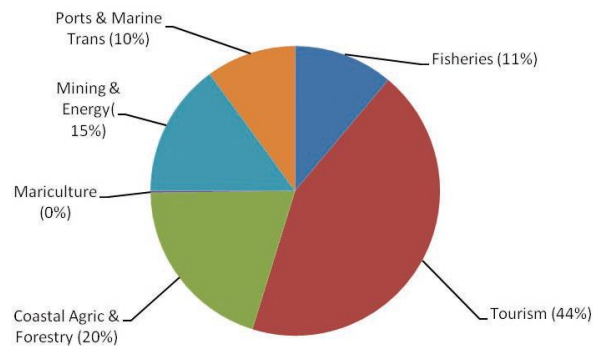


Figure 1: Results from the ASCLME project showing the relative contribution of goods and services in the Western Indian Ocean. Source: ASCLME/SIOFP, 2012a

Table 1: A summary of the economic data for the Western Indian Ocean Region. The highlighted cells indicate the most dominant sector in each country's economy (Source: Cost-benefit analysis from the TDA linked to the ASCLME project, ASCLME/SWIOFP, 2012a).

Country	Fisheries (Million USD)	Coastal tourism (Million USD)	Agriculture & forestry (Million USD)	Mariculture (Million USD)	Mining & energy (Million USD)	Ports & coastal transport (Million USD)	Total coastal economy (Million USD)	Coastal domestic product per capita	TCE/coastline (Million USD/km)
Comoros	45.2	16.7	0.86	7.6	-	24	94.36	127.99	0.28
Kenya	4.6	4,153	-	0.8	179	100	4,437.50	1,357.41	8.28
Madagascar	586.6	308.2	20.5	6.7	85	36	1,043.00	83.81	0.22
Mauritius	208.1	1,190	11	0.3	-	52	1,461.40	1,112.94	8.26
Mozambique	356	145	526.5	-	82.5	60	1,170.00	84.33	0.47
Seychelles	313.7	247	5.33	9.6	-	6	581.63	6,460.83	1.18
Somalia	36.9	0	729.6	4.3	-	24	794.8	143.8	0.26
South Africa	769.3	1,743	264	7.6	1,450	1,500	5,733.90	301.99	2.05
Tanzania	31	4,008	2,097	0.8	932	30	7,098.80	771.61	4.99
TOTAL	2,351.40	11,810.90	3,654.79	37.7	2,728.50	1,832.00	22,415.29	1,160.52	2.89

Global assessments of economic development and governance also use governance indicators to assess stability of a country using these governance indicators will help understand the regulatory environment for starting business operations in countries, which can influence economic development and governance in general. Following the Kelleher (2015) approach, the most recent World Bank governance indicators (Table 2) and ease of doing business ranking (Table 3) were collated to understand the governance status of WIO nations.

Table 2: World Bank governance scores for WIO countries High values represent a high rank which corresponds to a positive scale of each variables (columns). For example, Mauritius is estimated to have the “highest” or “best” Government Effectiveness according to the World Bank.

Country	Voice & accountability	Political stability/ Absence of violence or terrorism	Government effectiveness	Regulatory quality	Rule of law	Control of corruption
Comoros	28	42	4	11	13	15
Kenya	36	12	38	41	36	25
Madagascar	38	38	12	23	16	16
Mozambique	32	20	19	23	15	24
Mauritius	73	74	78	79	77	64
Seychelles	58	69	71	49	59	81
Somalia	3	3	1	2	0	1
South Africa	69	40	66	62	51	60
Tanzania	32	33	17	28	29	41

Source: World Bank (www.knoema.com) (2019)/Worldwide Governance Indicators (www.govinicators.org)

The status of the WIO can be usefully analysed against several of the United Nations indices, which are used to track performance against the Sustainable Development Goals (SDGs). The 2019 Human Development Report (UNDP, 2019) – a product of the United Nations Development Programme (UNDP) – details countries’ and regions’ performance against several indices, including the Human Development Index (HDI) and the Inequality-adjusted HDI (IHDI). The HDI considers and averages human development indicators (e.g., education, life expectancy) as a metric to indicate a country’s level of development, rather than economic growth. The IHDI is similar to the HDI, except that it considers the distribution of human development across a country’s population. In an ideal scenario, the HDI will be equal to the IHDI when inequality is not present in a country. In more realistic scenarios, the IHDI is lower than the HDI due to inequalities, and the lower the value indicates greater inequality regardless of the level of development (Roser, 2014; UNDP, 2019). The different dimensions, indicators and component indices for these two measures are further summarised in Figure 2 below.

Table 3. Ease of doing business rank in the Western Indian Ocean region, considering 190 countries were (i.e. Mauritius is ranked 13 out of 190 countries, and ranked higher than South Africa, ranked 84). Data from World Bank (2018/2019).

Country	Ranking (World Bank)
Mauritius	13
South Africa	84
Seychelles	100
Mozambique	138
Tanzania	141
Kenya	56
Comoros	160
Madagascar	161
Somalia	190
France (Reunion)	32

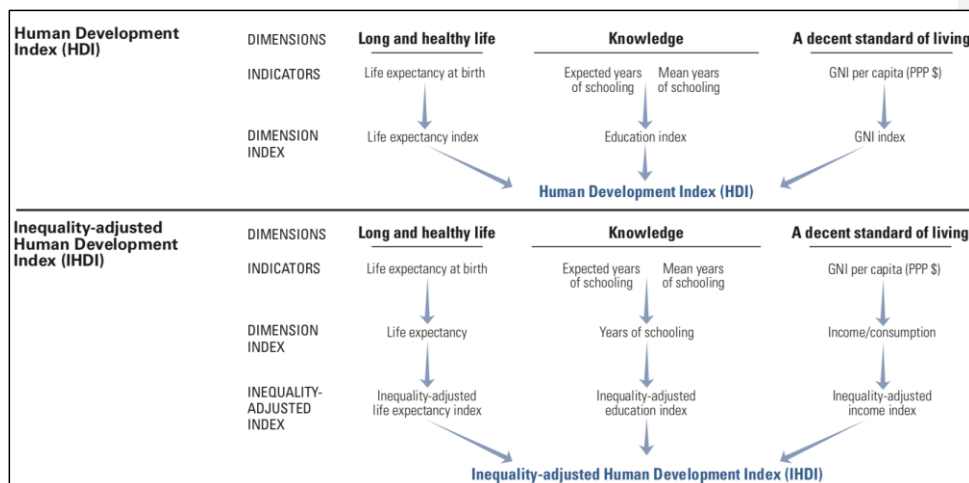


Figure 2: Summary of the different dimensions, indicators and component indices that make up the Human Development Index (HDI) and the Inequality-adjusted HDI. Source: UNDP (2019) Technical report.

The historical performance of the WIO region against the HDI is shown in Figure 3 for the period from 2000 – 2018. Whilst a general upward trend is visible, there is a clear distinction between Seychelles, Mauritius, and South Africa in the upper bands of human development (the ‘very high’ and ‘high’ levels of human development), and the other five countries in the lower (‘medium’ and ‘low’) levels of human development.

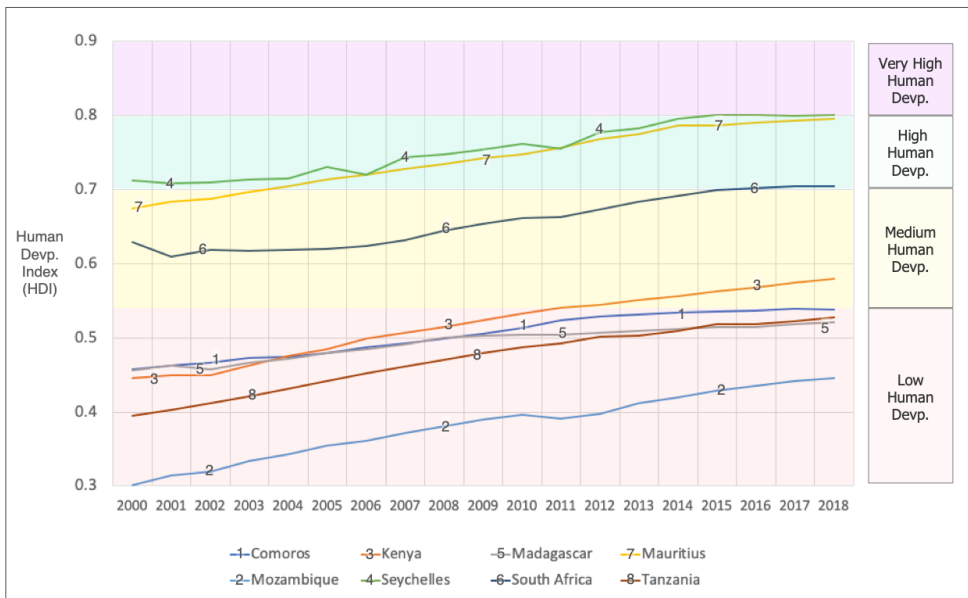


Figure 3: Performance of eight of the WIO countries against the UNDP’s Human Development Index (HDI) for the period from 2000-2018, in relation to the four bands of human development (from ‘very high’ to ‘low’ levels of human development). Note that Somalia and Reunion are excluded here (Somalia, because of lack of data, Reunion because it is incorporated into France’s rankings). Data drawn from UNDP (2019).

When accounting for inequality, a different picture comes into focus: whilst South Africa, for example, ranks in the ‘high human development’ category (with a 2018 score of 0.7), the inequality-adjusted HDI ranks South Africa far lower (at 0.46), effectively placing the country in the lower band of human development. The inequality-adjusted index accounts for income disparity, as shown in Table 4 below, which includes the WIO countries’ Gini coefficients (a measure of inequality that describes the distribution of income across a population. Lower values indicate lower inequality).

Table 5 summarises the WIO countries’ performances against select environmental indicators (both sustainability measures, such as renewable energy consumption, and environmental threats, such as levels of degradation). Three-colour coding is used to visualise partial grouping of countries by indicator. For each indicator countries are divided into three groups of approximately equal size: the top third (green), the middle third (yellow) and the bottom third (orange).

Table 4: Performance of eight of the WIO countries (excluding Somalia and France) against the human development index (HDI), the inequality-adjusted HDI, and income disparity metrics (income share and the Gini coefficient). Source: drawn from <http://hdr.undp.org/en/content/table-3-inequality-adjusted-human-development-index-ihdi>.

Sustainable Development Goals (SDG)				SDG10.1			
Country	HDI rank	Human Development Index (HDI)	Inequality-adjusted HDI (IHDI)	Income shares (%) held by			Gini Coefficient
	No.	Value	Value	Poorest 40%	Richest 10%	Richest 1%	(%)
		2018	2018	2017	2017	2016	2017
VERY HIGH HUMAN DEVELOPMENT							
Seychelles	62	0.801	..	15.2	39.9	..	46.8
HIGH HUMAN DEVELOPMENT							
Mauritius	66	0.796	0.688	19.2	29.0	7.1	35.8
South Africa	113	0.705	0.463	7.2	50.5	19.2	63.0
MEDIUM HUMAN DEVELOPMENT							
Kenya	147	0.579	0.426	16.5	31.6	..	40.8
LOW HUMAN DEVELOPMENT							
Comoros	156	0.538	0.294	13.6	33.7	..	45.3
Tanzania	159	0.528	0.397	18.5	31.0	..	37.8
Madagascar	162	0.521	0.386	15.7	33.5	..	42.6
Mozambique	180	0.446	0.309	11.8	45.5	..	54.0

Table 4 and Table 5 both relate their respective indicators to particular Sustainable Development Goals (SDGs) and their targets (e.g. SDG 10 – reduce inequalities – in Table 4). Given the importance of the SDGs in relationship to one another, Appendix 7.1 introduces and discusses key interactions between SDGs, applied to the WIO.

In relation to how these information, stats and rankings link to MSP, one could argue that if human well-being is low, economic growth and development will be a priority and can affect implementation of MSP (and adoption of a spatial management plans). Where economic indicators (e.g., GDP, income

per capita, ease of doing business) are low, countries could argue that they need to prioritise alleviating human well-being first, affecting “MSP readiness” (see more details later). However, countries should strive to adopt MSP, because it has been identified as a tool to support Blue Economy growth (as seen in some WIO countries like Seychelles).

Table 5: Data drawn from the 2019 Human Development Report 'Environmental sustainability dashboard' for the eight WIO countries (excluding Somalia and Reunion). Three-colour coding is used to visualise partial grouping of countries by indicator. For each indicator countries are divided into three groups of approximately equal size: the top third (green), the middle third (yellow) and the bottom third (orange). Data sourced from <http://hdr.undp.org/en/content/dashboard-4-environmental-sustainability-0>.

SDGs		SDG12.c	SDG7.2	SDG9.4	SDG15.1		SDG6.4	SDG12.2	SDG3.9	SDG3.9	SDG15.3	SDG15.5
		Energy consumption		Other environmental sustainability indicators					Environmental threats			
		Fossil fuel	Renewable	Carbon dioxide emissions	Forest area		Fresh water withdrawals	Natural resource depletion	Mortality rate attributed to		Degraded land	IUCN Red List Index
Country	HDI rank	(% of total energy consumption)	(% of total final energy consumption)	Per capita (tonnes)	(% of total land area)	Change (%)	(% of total renewable water resources)	(% of GNI)	(per 100,000 population)		(% of total land area)	(value)
	2018	2010-2015	2015	2016	2016	1990 / 2016	2007-2017	2012-2017	2016	2016	2015	2018
VERY HIGH HUMAN DEVELOPMENT												
Seychelles	62	..	1.4	..	88.4	0.0	..	0.0	49	0.2	12	0.664
HIGH HUMAN DEVELOPMENT												
Mauritius	66	84.5	11.5	3.2	19.0	-6.0	..	0.0	38	0.6	27	0.396
South Africa	113	86.8	17.2	7.4	7.6	0.0	30.2	2.7	87	13.7	78	0.772
MEDIUM HUMAN DEVELOPMENT												
Kenya	147	17.4	72.7	0.3	7.8	-5.8	13.1	2.5	78	51.2	40	0.797
LOW HUMAN DEVELOPMENT												
Comoros	156	..	45.3	..	19.7	-25.3	..	1.8	172	50.7	22	0.764
Tanzania	159	14.4	85.7	0.2	51.6	-18.3	..	2.2	139	38.4	..	0.689
Madagascar	162	..	70.2	..	21.4	-9.1	..	0.8	160	30.2	30	0.788
Mozambique	180	12.6	86.4	0.3	48.0	-13.0	0.7	1.3	110	27.6	..	0.825

2.1.2 Performance of the WIO countries against international governance indices

Three indices are drawn from here to provide a snapshot of the governance context in the WIO region: the Corruption Perception Index (CPI), produced by Transparency International; The Democracy Index (produced by The Economist Intelligence Unit); and the Bertelsmann Stiftung’s Transformation Index (BTI).

Transparency International’s Corruption Perception Index (CPI) is a respected ranking of countries by their perceived levels of public sector corruption, using a scale of zero to 100 (where zero is highly corrupt and 100 is very clean). The average score for the ten WIO countries (excluding Reunion and France) on the recently-published 2020 CPI is 34.5, which is below the global average of 43 (Transparency International, 2021). The WIO countries are compared with one another in Figure 4, which includes relative rankings globally, from Denmark (scoring 88 and ranking first globally) to South Sudan (scoring 12 and ranking 179th globally). The Seychelles is the highest ranking WIO country (with a score of 66) and Somalia is the lowest ranking (with a score of 12). Seven out the ten ranked WIO countries scored below the global average of 43.

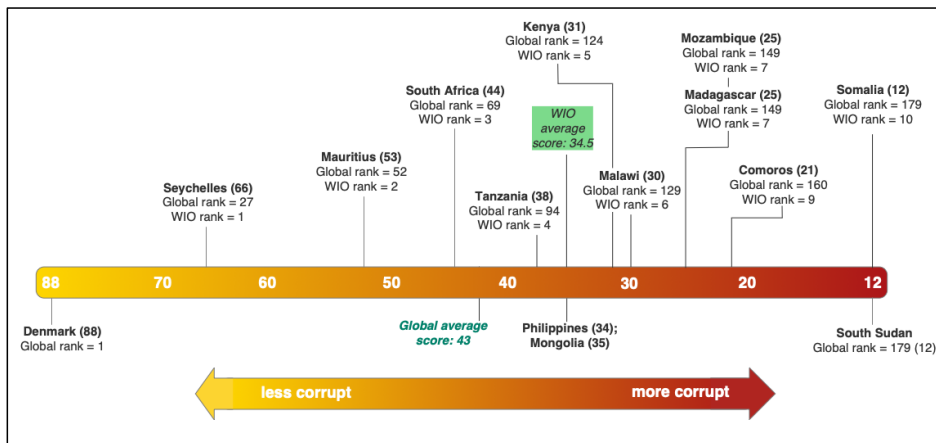


Figure 4: The WIO countries ranked along Transparency International’s 2020 Corruption Perception Index. Data sourced from Transparency International (2021).

A related governance measure is The Democracy Index, which is produced by The Economist Intelligence Unit (EIU), the data analytics and consulting arm of The Economist newspaper. This Index provides a snapshot of the state of democracy in each country, against five categories. The 2020 edition

of the EIU Democracy Index is the 13th edition of the index, which categorises countries into four regime types, according to the regime characteristics summarised in Table 6 below.

Table 6: Categorisations of regime type according to the EIU’s Democracy Index. Source: drawn from the EIU, 2021.

Regime type	Characteristics	Countries (global)		Countries (WIO)	
		n	%	n	Countries
Full democracies	Civil liberties and political freedoms are both respected and reinforced; Checks and balances on political power in place; Independent media	23	13.8	1	Mauritius
Flawed democracies	Free and fair elections and basic civil liberties most honoured Underdeveloped political culture; Low levels of participation in politics; Problems with corruption	52	31.1	1	South Africa
Hybrid regimes	Election problems (including electoral fraud); Widespread corruption; Harassment and pressure on the media; Low levels of participation in politics	35	21.0	4	Kenya, Madagascar, Malawi, Tanzania
Authoritarian regimes	Political pluralism either non-existent or severely limited; Abuses of civil liberties commonplace; State-owned or state-controlled media	57	34.1	2	Comoros, Mozambique
Uncategorised	-			2	The Seychelles, Somalia

The performance of the WIO countries is presented in three Figures: the map in Figure 5 illustrates the overall score of the WIO countries on the Democracy Index; the radar diagram in Figure 6 provides a disaggregated score against the five main criteria; and the time series graph in Figure 7 shows the performance of the WIO countries on the Democracy Index in the period between 2006-2020.

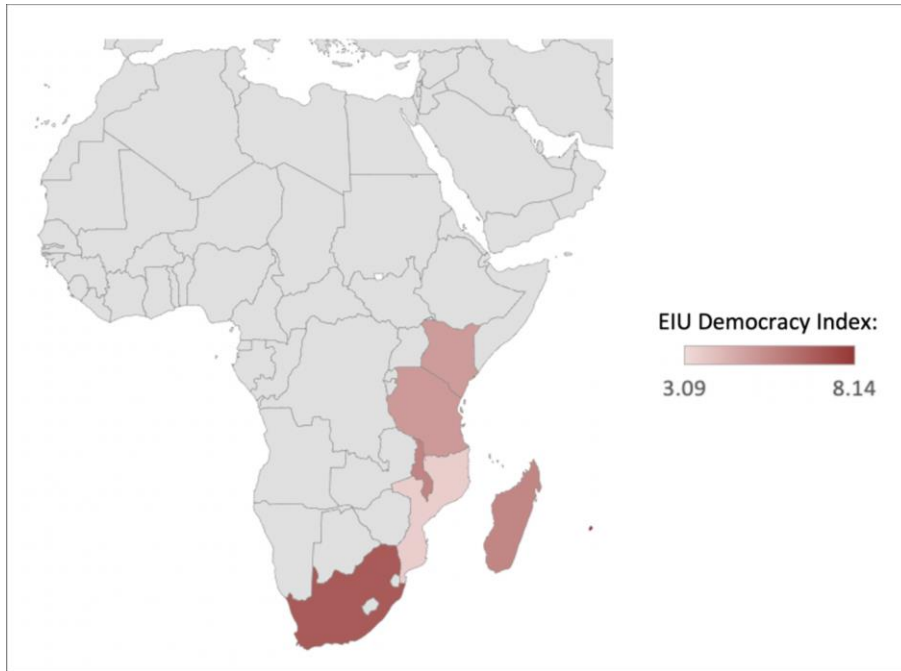


Figure 5: Performance of the eight WIO countries (excluding Somalia, the Seychelles, and Reunion) on the 2020 EIU Democracy Index (where 1 is low, 10 is high). Data sourced from EIU, 2020.

In the radar diagram in Figure 6, the WIO countries scores on the 2020 Democracy Index are disaggregated by the five categories: I. Electoral process and pluralism; II. Functioning of government; III. Political participation; IV. Political culture; and V. Civil liberties. The Comoros score the lowest, and Mauritius the highest.

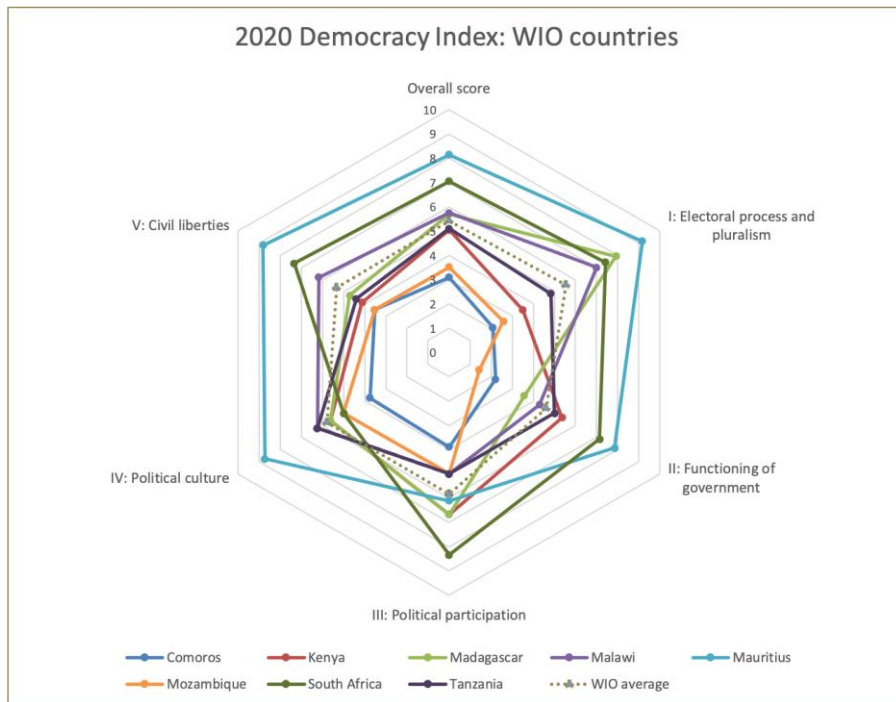


Figure 6: Performance of eight of the WIO countries (excluding Somalia, the Seychelles and Reunion) on the 2020 Democracy Index. Data sourced from EIU, 2021.

The 2020 Democracy Index is a snapshot that shows the restrictions that governments imposed over the course of the Covid-19 pandemic and therefore could be said to not be indicative of the country's performance in other years. However, the long-term performance of the WIO countries on the Democracy Index (Figure 7) shows a general negative trend in the last five years (2015-2020), indicative of a gradual erosion of democratic practices in the WIO countries (with the notable exception of Madagascar). The time series graph also illustrates that most of the WIO countries are either in the 'hybrid regime' category (n=4) or the 'authoritarian' category (n=2), with only South Africa and Mauritius in the upper two regime types. The implications for regional MSP processes are that the enabling environment at a policy level is limited and the national capacity to implement MSP processes, particularly with extensive public participation, is also limited.

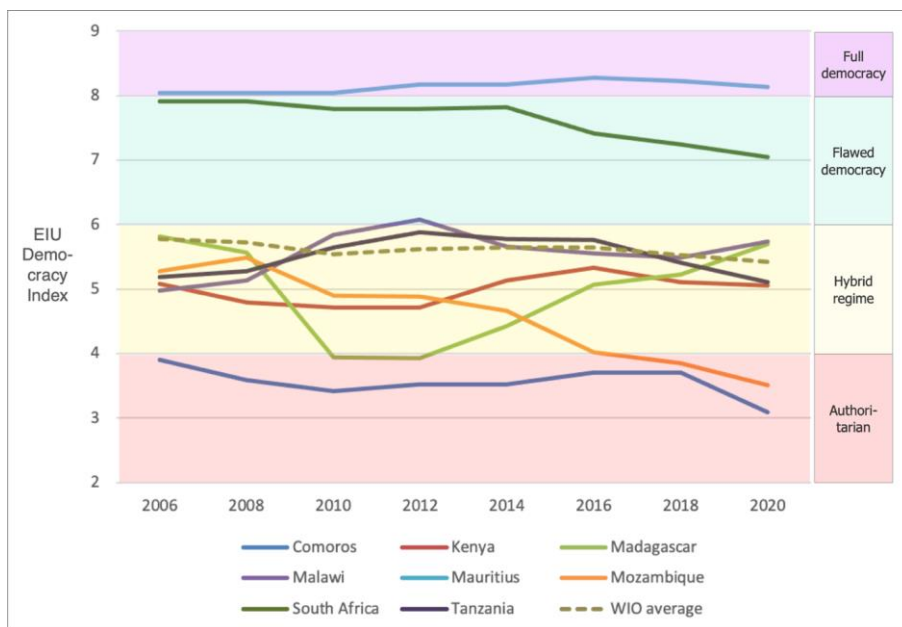


Figure 7: Long-term performance of countries in the WIO region on the EIU’s Democracy Index, in two-year intervals from 2006 to 2020. Data sourced from EIU, 2021.

One of the critiques of the Democracy Index, which applies equally to the World Bank’s Ease of Doing Business measure, is the lack of transparency as to what’s behind the measures and the composition of experts (by nationality and skillset) who’s opinions account for the rankings. This is where the third index featured here, the BTI index, is useful. The Bertelsmann Stiftung’s Transformation Index (BTI) analyses the quality of democracy, market economy and governance and is based on over 5,000 pages of detailed country reports produced in cooperation with over 280 experts from universities and think tanks in more than 120 countries. The 2020 BTI covers the period from February 2017 – January 2019. Overall performance of the eight WIO countries assessed on the BTI index is shown in Figure 8 below, with the disaggregated scores for each of the three categories (democracy, economy, and governance) shown in the radar diagrams in Figure 9 below.

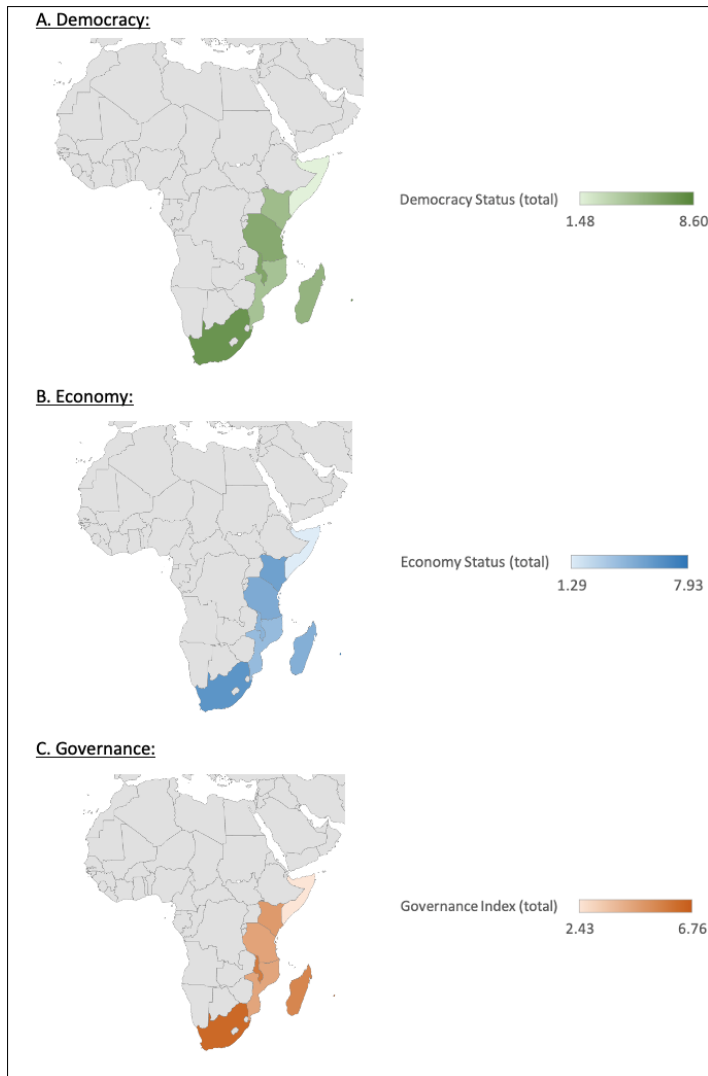


Figure 8: Bertelsmann Stiftung's Transformation Index (BTI) results for the primary status indicators for quality of A. Democracy; B. Market economy; and C. Governance. The higher the score, the better the performance.

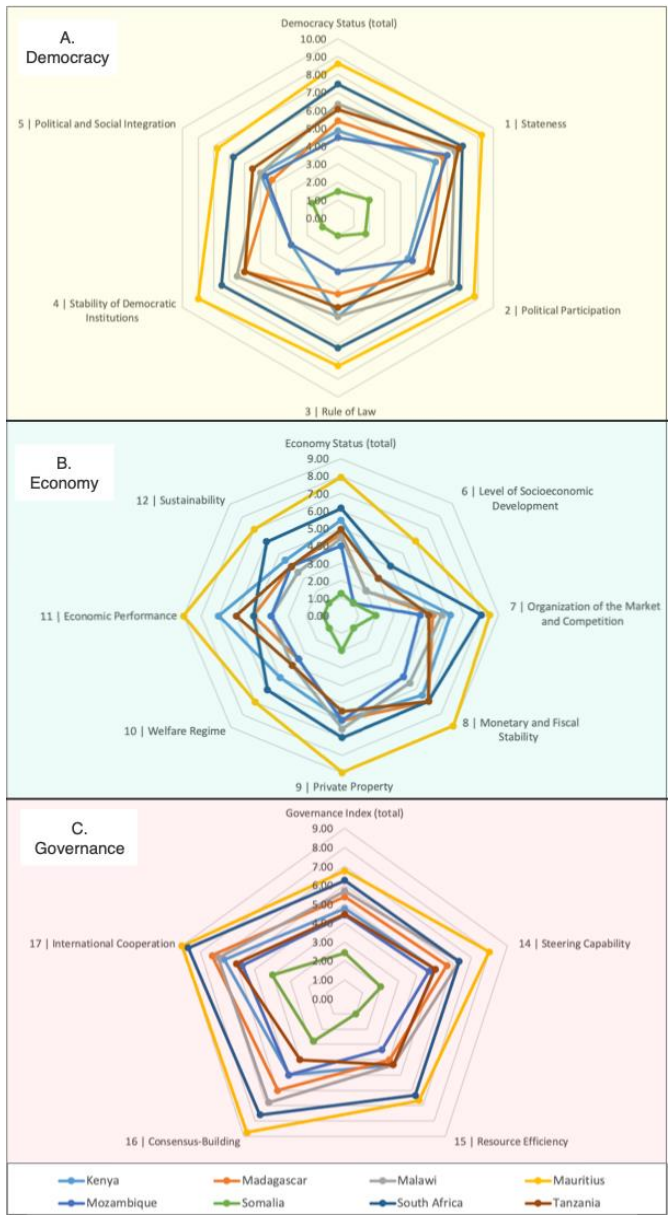


Figure 9: BTI index comparative measures: A. Democracy; B. Economy; C. Governance.

2.1.3 Status of governance structures

The governance profiles of countries in the WIO region are generally related to governmental organization, processes and priorities, levels of economic development, the degree of scientific capability and the ability to incorporate science into policy process, patterns of social organization, culture and values as well as political relations (ASCLME/SWIOFP, 2012a). The MEDA reports that informed the TDA from the ASCLME project provide a detailed policy governance assessment for countries in the WIO region (ASCLME/SWIOFP, 2012a). These reports provide summaries on the policy, legislation and institutional frameworks at a national level. The TDA report also provides a summary on the management, policy and governance in the WIO region. This assessment provides an overview of the governance systems that are related to marine and coastal resource management at the national and regional level. The main outputs from the TDA and the MEDA reports include:

- A summary of the constitutional standing
- A detailed policy and governance assessment of each country
 - Each of these reports consist of a similar structure which includes a country profile (background to physical-geographic setting, economic and legal history or structure etc.), a summary of the legal structure across all sectors, and the institutional structure and frameworks related to marine and coastal resources and environmental management. Details are provided in the TDA and associated documents and appendices (ASCLME/SWIOFP, 2012a; b)
- A summary of the gaps and recommendations for sectoral legislation at a national level
- A summary of national institutional arrangements
- A summary of the regional and international management and governance (including legal instruments, international agreements)
- A summary of the regional institutional arrangements (e.g. Secretariats and other intergovernmental agreements, regional non-governmental organisations)
- Recommendations for the region.

Prior to the ASCLME project and the TDA, a report by UNEP/Nairobi Convention Secretariat (2010) conducted a review of the policy, legal, regulatory and institutional frameworks for land-based sources and activities management in the Western Indian Ocean region. Like the TDA linked to the ASCLME project, this report provides summaries on country profiles, including the key marine and coastal

resources for the region and the socio-economic standings of the WIO countries. There is some overlap in the content of the UNEP/Nairobi Convention Secretariat (2010) report and the TDA as the MEDA reports and TDA were based on the research and outputs from the Transboundary Diagnostic Analysis of Land-based Sources and Activities Affecting the Western Indian Ocean Coastal and Marine Environment (WIO-Lab) project (UNEP/Nairobi Convention, 2009). There was a detailed assessment on the consideration of the (1) constitutional and legal framework, (2) policy and regulatory frameworks and (3) institutional frameworks for each country in the WIO region (UNEP/Nairobi Convention Secretariat, 2010). Based on this assessment there was also a synthesis of the existing gaps in legal, regulatory/policy and institutional frameworks. These assessments would have provided the foundation and underlying information of the ASCLME TDA. Despite the focus on land-based activities, there is still a large amount of overlap in these governance structures, in relation to the marine and coastal environment. For example, some of the challenges and weaknesses identified from the policy and governance assessment of WIO-LaB project will most likely have common themes and synergies that occur throughout the WIO region and that will be relevant to marine spatial planning in the region.

Some of the challenges identified from the UNEP/Nairobi Convention Secretariat (2010) report include:

1. Lack of harmonisation of existing legal frameworks
2. Financial constraints for enforcement
3. Limited access to environmental justice
4. Lack of environmental consideration in planning laws
5. Lack of environmental education in curricula

The synthesis section of UNEP/Nairobi Convention Secretariat (2010) report provides an overview of sectoral instruments related to environmental and land-based sources of activities, and provides a regional overview of the Legal, Policy and Institutional Gaps and Issues. The report also includes an overview of the Possibility for Unified/Harmonized National Legislations on Land-Based Sources and Activities, which can also be linked to an MSP strategy for the WIO region. Recommendations made by this review can also be used to inform and address current issues and challenges related to legal, policy and governance structures and frameworks in the WIO region, which will support MSP practices at a regional level.

The most up to date assessment of governance structures in the WIO region is provided by the newly released report by UNEP and the Nairobi Convention as one of the outputs from the SAPPHIRE project (UNEP & Nairobi Convention, 2020). This report summarises the status and trends of ocean governance

in the region and identified key challenges, gaps and opportunities for a regional governance strategy in relation to best practices. Details of this assessment are beyond the scope of this report, but are provided in the UNEP and Nairobi Convention (2020) background document. The report comprises four main sections including:

- The state of regional governance
- Sector and thematic governance
- Governance at the national level
- International experiences and lessons

This background document was used as a foundation to prepare a draft cooperative Ocean Governance Strategy for the Western Indian Ocean (discussed in more detail in **Error! Reference source not found.**).

2.1.4 Status of management & protection

The UNEP Nairobi Convention and WIOMSA have recently drafted an MPA Outlook report to collect data, map out, and understand the status and challenges with MPA establishment and management in the region (UNEP-Nairobi Convention and WIOMSA, 2021). Based on that forthcoming report, there are 149 marine protected areas (MPAs) that cover at least 678,000 km² or 8% of the combined exclusive economic zone (EEZ) of the WIO. These MPAs were established to conserve endangered and endemic species, which include the coelacanth *Latimeria chalumnae*, dugongs, turtles, and seabirds. The majority of these MPAs were established along the coast, and mostly protected nearshore features including mangroves, coral reefs, and seagrass beds.

In addition to these MPAs, various institutions in Kenya, Madagascar, and Mozambique have also proposed and established a total of 173 locally-managed marine areas (LMMAs) to contribute to local fisheries objectives. Although these LMMAs are much smaller than the MPAs established and managed by the national governments in the WIO, they protect at least 1,600 km² of area of coastal habitats. Moreover, they are also supported by communities, which contributes to the enforcement and consequently effective management of such LMMAs.

The WIO have achieved great strides in MPA establishment. However, most of the countries in the region have yet to fulfil the 10% habitat representation targets set out by the Convention on Biological Diversity and UN Sustainable Development Goals. There should be greater effort undertaken to protect

offshore features to ensure persistence of species and ecosystems, and to contribute to achieving biodiversity conservation goals. Another challenge that WIO countries face is sustaining effective management of MPAs. Using the management effectiveness tracking tool (METT; Hockings et al., 2008; Stolton and Dudley, 2016), it was noted that the majority of the MPAs in the region were not effectively managed. Moreover, MPA managers that participated in the assessment have noted the following management problems: i) poor enforcement and continued illegal harvesting inside MPAs; ii) lack of understanding of MPA managers and rangers of key MPA concepts; iii) lack of a capacity building program to support knowledge and skills development of MPA management; and, iv) poor maintenance of infrastructure and equipment used by MPA management. These problems were a result of lack of financial and human resources to support park management, and were also influenced by the social, economic, and political contexts that surround the MPAs.

Because the UNEP Nairobi Convention and WIOMSA have a strong presence in the region, it was suggested that they facilitate scaling up to a regional network of MPAs to help address the challenges with MPA establishment and management. The regional network can help improve planning and establishment of individual MPAs, because ecological, social, economic, and political design objectives and considerations could be defined and addressed more explicitly. Moreover, the regional network could also support sharing of lessons and experiences among managers and countries, which can contribute to improving MPA design and management. Through various fora organised by UNEP and WIOMSA, the learning exchanges and discussions with the governments could also facilitate the integration of MPAs into broader marine spatial plans and ridge-to-reef management plans. This will be very important, because MPAs can be prioritised in broader spatial plans to ensure that they do not conflict with other management and economic objectives.

2.1.5 Status of marine and coastal ecosystems

The WIOMER project and ASCLME project (and associated country-specific MEDAs and TDA) provided some degree of assessment of the physical/ecological environmental environment and status of marine and coastal ecosystem in the region. The WIOMER report identified key biodiversity features of the WIO:

- The world's third largest barrier reef complex buffering the western coast of Madagascar from the Mozambique Current
- One of the world's largest seagrass beds and banks of reefs in the Mascarene Shoals

- The only oceanic islands with a granite continental core that are fringed with an ancient and distinctive reef fauna
- A global hotspot for coral reef fish and invertebrate endemism, with a particularly foci of local endemism (found nowhere else) in the Mascarenes
- Some of the healthiest populations of blue, humpback, and sperm whales on the planet
- Globally outstanding aggregations of seabirds and marine turtles on feeding grounds and islands
- One of the least impacted tuna populations on the planet and an extraordinarily productive seamount north of the Seychelles
- Highly productive upwelling phenomena driven by monsoon upwellings in the Somalian Current and gyres in the Mozambique Channel
- A relatively intact population and migration of diadromous eels (return to freshwater to spawn)
- Populations of several species of marine turtles, dugong, and coelacanth.

The WIO consists of warm tropical waters comprising important marine and coastal ecosystems such as coral reefs, seagrass beds, mangroves and sandy beaches (Obura et al., 2017). Multiple sub-regions and bioregions have been identified (Obura, 2012; Spalding et al., 2007), with the northern Mozambique channel demonstrating a hotspot of biodiversity, and the Mascarene plateau (islands) demonstrating the highest level of marine endemism globally (Obura et al., 2017; Briggs and Bowen, 2013). Areas of unique productivity have also been identified within the Agulhas and Somali currents (south and north in the region) and within the Mascarene plateau and banks (centre of the region) (Obura et al., 2017).

Generally, the WIO region boasts a high level of marine biodiversity, but in contrast, the biomass of individual species is quite low (Regional State of the Coast report, UNEP-Nairobi Convention and WIOMSA, 2015). Areas of high productivity appear to be restricted to coastal areas adjacent to river outflows, which provide nutrients to coastal ecosystems), mostly along the east coast of Africa and Madagascar (UNEP-Nairobi Convention and WIOMSA, 2015). Rapid population and economic development in the region has increased pressures and impacts on marine and coastal ecosystems, particularly overfishing and coastal development which appears to have had detrimental effects on the abundance of stocks and marine biodiversity (UNEP-Nairobi Convention and WIOMSA, 2015). It is beyond the scope of this report to provide a detailed assessment of the status of marine and coastal ecosystems in the WIO region. However, the Regional State of the Coast report provides a thorough, recent assessment on the marine environment in the region, including detailed accounts of marine

biological biodiversity, ecosystem service delivery, food provision from marine resources, human activities in the region and scenarios, policy options and capacity building (UNEP-Nairobi Convention and WIOMSA, 2015).

In addition to the summaries provided in the Regional State of the Coast report, national-level assessments were conducted under the ASCLME project, and which can be consulted for MSP initiatives and to inform the development of a regional MSP strategy. In addition, there is a growing appreciation for ABNJ in their contribution to critical ecosystem services (Maina et al., 2020; Popova et al., 2019). In particular, ecological connectivity has been shown to affect ecosystem functioning and should be considered in the sustainable management of resources and marine ecosystems (Grorud-Colvert et al., 2014; Levin et al., 2018; Momigliano et al., 2015). For example, Maina et al. (2020) showed how using simulations of functional connectivity and seafloor geomorphology, they were able to apply a contextual approach to regional marine conservation planning to inform effective conservation planning in the WIO. Therefore, transboundary management of marine ecosystems should be considered in MSP and available data and examples from the region will inform the development of the MSP strategy for the WIO.

2.2 Climate change in the WIO region

The WIO region is threatened in many different ways by long-term climate change. Ridgway and Hoegh-Guldberg (2016) prepared a background paper for a conference, “Towards COP22: African Ministerial Conference on Ocean Economies and Climate Change”, hosted in Mauritius in 2016, which provides details on the climate drivers in the region and the potential impacts and threats for African Oceans. In addition, several projects have been initiated to address the threats of climate change to the WIO, for example, the CICALICO project (Cities and Climate Change In Coastal Western Indian Ocean: A Grand Challenge; <https://www.wiomsa.org/cities-coasts-ongoing/cities-and-climate-change-in-coastal-western-indian-ocean/>). In addition, a revised draft of the Africa Climate Change Strategy 2020-2030 was released in October 2020 (https://archive.uneca.org/sites/default/files/uploaded-documents/ACPC/2020/africa_climate_change_strategy_-_revised_draft_16.10.2020.pdf) and UNEP developed a Climate Change Strategy for the Marine and Coastal Environment in the Nairobi Convention Area (Nairobi Convention, 2016).

The dimensions of climate change and adaptive capacity to respond to climate change in the WIO are described here by drawing on two indices and providing two illustrative impacts.

2.2.1 Climate change index #1: A snapshot of vulnerability and readiness based on the University of Notre Dame’s Global Adaptation Index (ND-GAIN)

The Notre Dame-Global Adaptation Index (ND-GAIN) country index is a free open-source index that assesses country’s climate change vulnerability and readiness. Vulnerability measures a country's exposure, sensitivity and ability to adapt to the negative impacts of climate change. ND-GAIN measures the overall vulnerability by considering six life-supporting sectors: food, water, health, ecosystem service, human habitat and infrastructure. Readiness targets those portions of the economy, governance and society that affect the speed and efficiency of absorption and implementation of adaptation projects. ND-GAIN measures economic readiness by assessing the investment climate; governance readiness by assessing the stability of the society and institutional arrangements that influence investment; and social readiness by assessing the social conditions that help society to make efficient and equitable use of investments. The ND-GAIN results plotted in Figure 10 show the nine WIO countries (France and Reunion excluded), ranked in relation to the total 181 countries, along two axes (readiness on the horizontal axis, and vulnerability on the vertical). The intersecting medians for vulnerability and readiness create four quadrants in Figure 10:

- The most desirable quadrant is the lower right quadrant, characterised by a low level of vulnerability to climate change and a high level of readiness. Norway, which is ranked first on the 2018 ND-GAIN index, is situated in this quadrant. No WIO countries are situated in this quadrant.
- The upper right quadrant, by comparison, includes the countries with a high level of vulnerability to climate change, but also a high level of readiness. Mauritius (ranked 47th globally) and the Seychelles (ranked 84th globally) are the two WIO countries in this quadrant.
- The lower left quadrant is for countries with a low level of vulnerability to climate change and a relatively low level of readiness. South Africa (ranked 92nd globally) is the only WIO country in this quadrant.
- The upper left quadrant is the least desirable quadrant, characterising those countries that are highly vulnerable to the effects of climate change and that have a low level of readiness. The remaining six WIO countries fall into this quadrant:
 - Tanzania, ranking 148th globally;
 - Kenya, ranking 152nd globally;
 - Mozambique, ranking 154th globally;
 - The Comoros, ranking 156th globally;
 - Madagascar, ranking 164th globally; and lastly,
 - Somalia, ranking 179th globally.

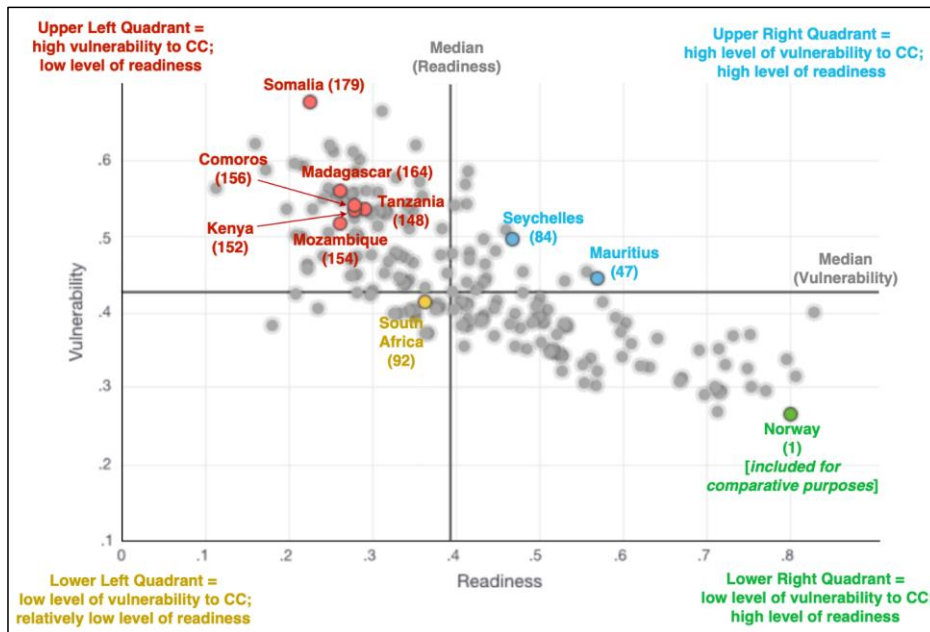


Figure 10: WIO countries plotted in relation to the total 181 countries in the 2018 ND-GAIN Index. The numbers in brackets represent the relative rankings of the countries. CC = climate change. Source data: ND-GAIN (<https://gain.nd.edu/our-work/country-index/rankings/>).

2.2.2 Climate change index #2: Global Climate Risk Index

A second climate change index that describes risk is produced by the NGO Germanwatch. The Germanwatch Global Climate Risk Index (CRI) assesses to what extent countries have been most affected by the impacts of weather-related loss events (including storms, floods, heat waves, etc). The most recent report, for 2019, has been released. An earlier report from 2017, which used data from 2015, is instructive for showing the scale of climate risks in the WIO region. Heavy rainfalls due to the intensified monsoon in South Eastern Africa, which started in December 2014 and continued throughout January 2015 and beyond, had disastrous consequences for infrastructure, agriculture and food security in the region. Mozambique, Malawi and Madagascar were the countries hardest hit by the floods resulting from the torrential rainfalls:

- In Mozambique the number of affected people was greater than 325,000 and 163 people were killed, resulting in Mozambique ranking as 1st on the CRI.
- In Malawi around 638,000 were affected with more than 170,000 temporarily displaced. The floods also fostered the outbreak of water-borne diseases, including cholera, in some regions. As a result, Malawi ranked 3rd on the 2015 CRI.
- In Northern Madagascar, the tropical storms Chedza in January 2015 and Fundi in February 2015 worsened the floods, while drought persisted in the south (Kreft *et al.*, 2017). Madagascar ranked 8th on the 2015 CRI.

Table 7: The top 10 most affected countries globally, assessed under the Climate Risk Index (CRI) for 2015. Three of the WIO countries featured in the top 10 most affected countries (highlighted in yellow). Source: reproduced from Kreft *et al.*, 2017: 7.

Ranking 2015 (2014)	Country	CRI score	Death toll	Deaths per 100 000 inhabitants	Absolute losses (in million US\$ PPP)	Losses per unit GDP in %	Human Development Index 2014 ¹¹
1 (23)	Mozambique	12.17	351	1.25	500.07	1.499	180
2 (138)	Dominica	13.00	31	43.66	611.22	77.369	94
3 (60)	Malawi	13.83	111	0.61	907.98	4.451	173
4 (10)	India	15.33	4317	0.33	40 077.22	0.501	130
5 (29)	Vanuatu	20.33	11	4.09	278.86	40.650	134
6 (94)	Myanmar	20.83	173	0.33	1 359.65	0.479	148
7 (138)	The Bahamas	22.83	33	9.07	80.64	0.904	55
8 (118)	Ghana	23.33	267	0.99	306.28	0.265	140
8 (34)	Madagascar	23.33	118	0.49	228.04	0.642	154
10 (62)	Chile	25.17	39	0.22	2 652.69	0.627	42

2.2.3 Illustrative impact #1: sea level rise

A 2008 assessment by the United Nations Human Settlements Programme (UN-HABITAT) Unit examined the proportion of national urban populations in urban low elevation coastal zones (LECZ),

defined as “the continuous area along coastlines that is less than 10 metres above sea level” (UN-Habitat, 2008: 141) (see Figure 11). In general, the densities in urban LECZ are highest in the developing world, with a 2008 average of 1,500 inhabitants for every square kilometre (UN-HABITAT, 2008: 142). As of 2008, about 20-25% of Mozambique’s national urban population lived in urban LECZ. As of 2018, around 60% of Mozambique’s total population was coastal, demonstrating the increasing vulnerability of the Mozambican populace to sea level rise (USAID, 2018). The SIDS in the WIO region (the Comoros and the Seychelles) are also vulnerable to sea level rise (as noted in a recent report on the threat of sea level rise and storm surges to Seychelles’ critical infrastructure, see Malliard *et al.*, (2020)).

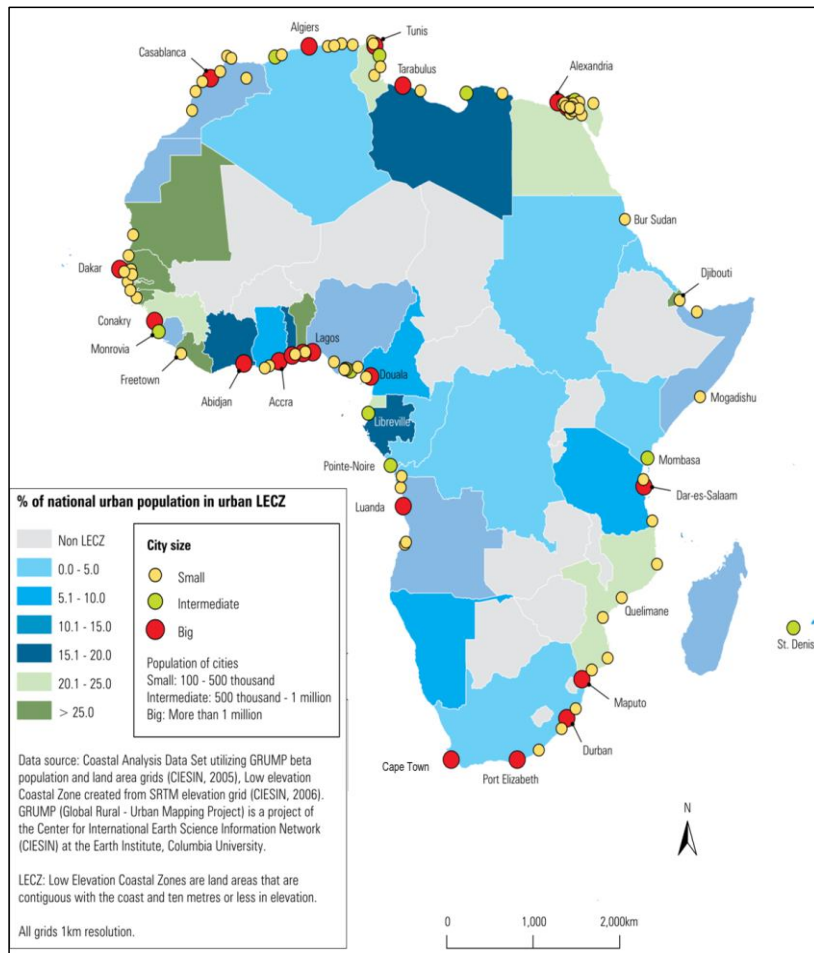


Figure 11: African cities at risk from sea level rise. Source: adapted from UN-HABITAT Global Observatory Unit, 2008.

2.2.4 Illustrative impact #2: coral reefs

A 2019 report on the 'Economic Impacts of Climate Change on the Ocean Economy' by Gaines et al. (2019), commissioned by the High-Level Panel for a Sustainable Ocean Economy, projects the ongoing impact of climate change (CC) in the WIO. For example, the report analyses the impact of climate

change on coral reef tourism, drawing on research by Spalding et al (2017) published in *Marine Policy* (see Figure 12 and Table 8).

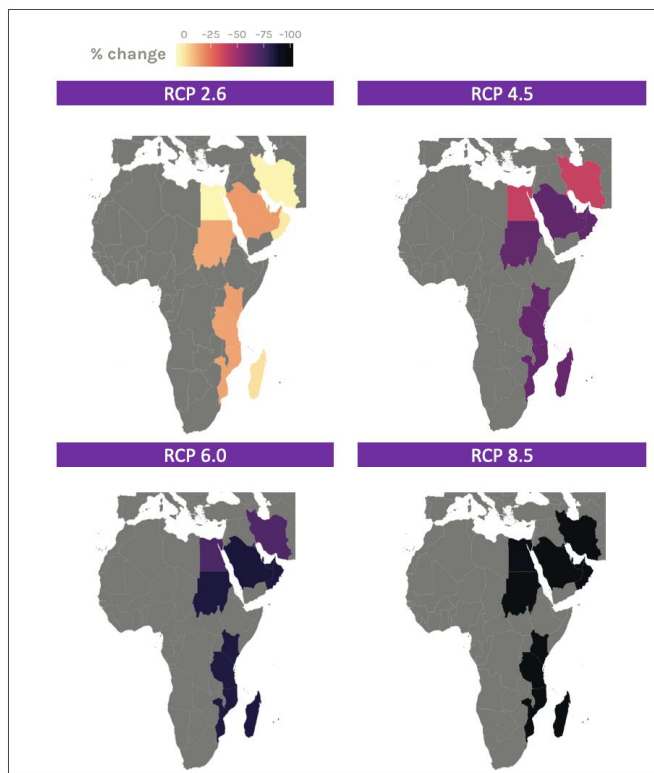


Figure 12: Percent change in coral reef tourism values in 2100 for different climate projections (relative to 2019 values). Source: adapted from Gaines et al., 2019: 24, drawing on data from Spalding et al., 2017.

In addition to the impact on tourism, coral reefs are also critical to maintaining coastal fisheries in the WIO, many of which are small-scale. In Mozambique, for example, coral reefs support about 6.6 million people and provide around 50% of Mozambican’s animal protein (USAID, 2018), making the threat of a 26 – 82% loss in coral cover (Table 8) a challenge both for economic development and for food security.

Table 8: Percent change in coral reef tourism values in 2100 for different climate projections for select WIO countries. Source: drawn from Gaines et al., 2019: 35-37.

Country	Total coral reef tourism value (US\$1,000/yr)	% tourism on-reef	RCP 4.5		RCP 8.5	
			% change in coral cover	% change in tourism values	% change in coral cover	% change in tourism values
Mauritius	312,389	47.4	-25.5	-62.8	-82.3	-95.9
Kenya	84,152	31.0	-26.4	-64.2	-82.6	-96.0
Seychelles	73,141	47.4	-26.1	-63.7	-82.5	-95.9
Mozambique	68,356	80.9	-26.6	-63.4	-82.5	-95.9
Madagascar	50,496	47.4	-26.1	-63.8	-82.5	-95.9

See p.23 of report for details of assumptions re. how the above (for figure + table were calculated).¹

2.3 Key issues/challenges identified in Western Indian Ocean region

A report which consulted 50 regional experts (Lagabrielle et al., 2009) identified 15 anthropogenic drivers of change affecting the main island states (Comoros, Madagascar, Mauritius, Seychelles and Reunion) of the WIO. These pressures were grouped into eight broad categories (not considering climatic drivers):

- pelagic industrial fisheries
- coastal fisheries
- shore gathering
- land-based sedimentation
- watershed pollution by urban activities and agriculture,
- local disturbance to ecosystems by urban activities,
- tourism
- shipping activities

¹ Gaines, S., Cabral, R., Free, C. M., & Golbuu, Y. (2019). *The Expected Impacts of Climate Change on the Ocean Economy*. Report commissioned by the High Level Panel for a Sustainable Ocean Economy. Washington, DC: World Resources Institute. Retrieved from www.oceanpanel.org/expected-impacts-climate-change-ocean-economy.

Considering the impacts on the main ecosystem types in the region (coral, mangrove, sea grass beds, others coastal habitats and offshore habitats - depth>200m, distance offshore>25km), sedimentation was ranked the highest (by the expert group) followed by the effects of urbanisation (Lagabrielle et al., 2009). The results of this analysis indicated that all island nations in the WIO were exposed to high intensities of pressures, except for areas around Madagascar which include low impact zones. A rapid scenario analysis indicated that offshore areas are likely to become highly impacted due to the development of industrial fishing and shipping activities.

In 2009, the Indian Ocean Commission (IOC) developed a Regional Strategy and Action Plan for Conserving Marine Ecosystems & Fisheries for the Western Indian Ocean Island Marine Ecoregion (WIOMER). This initiative aimed to increase collaboration on shared issues of concern, complement national and regional projects, promote action at appropriate scales to mitigate issues of concern and to provide a regional platform for communication and knowledge sharing (Indian Ocean Commission, 2010). Some of the key (seven) regional issues that were identified through this initiative included:

- Rapid expansion of fisheries management programs along coastlines and shoals
- Achieving sustainable offshore fisheries and healthy pelagic ecosystems
- Building and supporting a world-class network of marine protected areas
- Regional actions to protect wide-ranging species & species of special concern
- Balanced oil & gas development
- Adapting marine protected areas and fisheries to climate change
- Critical gaps in knowledge for effective management

The underlying drivers of change (root causes) were identified and included issues such as 1) human population growth, 2) international demand for marine resources, 3) declines in coastal community standards of living, tradition, and authority, 4) policy & capacity challenges, 5) oil & gas exploration and development, 6) lack of support for environmental issues, 7) market failure and 8) climate change (Indian Ocean Commission, 2010).

A UNEP/GEF funded project, Addressing Land-based Activities in the Western Indian Ocean (WIO-LaB), which focused on land-based activities that impact on the marine and coastal environment, was one of three projects that were initiated to collect data and define strategies to address priority issues in the WIO. The TDA and SAP from the WIO-LaB project identified four main priority areas for the region, which were address through four strategic priorities (or challenges):

- Protecting, restoring and managing critical coastal habitats
- Ensuring (good) water quality
- Managing river flows wisely
- Strengthening governance and awareness

Some of the broad main issues identified in the WIO region, according to outputs from the ASCLME project include:

- Piracy/Marine safety & security
- Sea level rise (Change to climate change)
- Coastal erosion (coastal development)
- Biodiversity Loss
- Habitat Loss (Could combine with above)

As part of the TDA (ASCLME/SWIOFP, 2012) for the ASCLME project, 50 issues were identified for the WIO region. These issues were grouped into four main categories, “Main Areas of Concern (MAC)”, and included:

- MAC01: Water quality degradation (8 issue categories)
- MAC02: Habitat and community modification (15 issue categories)
- MAC03: Declines in living marine resources (20 issue categories)
- MAC04: Unpredictable environmental variability and extreme events (7 issue categories)

Outputs from various stakeholder engagements (i.e. workshops) and the scoping exercise for the MEDA reports resulted in the identification of 21 priority transboundary issues for the WIO region under each of the main areas of concern (Table 9). Details on the methods and the prioritisation process are provide in the final TDA report (ASCLME/SWIOFP, 2012). In brief, the national relevance for each of the 50 identified issues was determined for each of the WIO countries. The importance (high, medium or low level) of each issue was identified at a national level, through the ranking of the availability of baseline data related to each issue, the presence of monitoring programs for each issue and the level of severity of each issue at a national level.

Table 9: Final list of 21 prioritised transboundary issues identified for the Western Indian Ocean.

Source: ASCLME/SWIOFP, 2012

MAC01 – Water Quality Degradation	
MAC01	1.1. Alteration of natural river flow and changes in freshwater input and sediment load 1.2. Degradation of ground and surface water quality (fresh and estuarine, not marine) 1.3.1 Microbiological contamination from land-based (domestic, industrial, agriculture and livestock) and marine (mariculture, shipping) sources 1.3.5 Solid wastes / marine debris (plastics etc.) from shipping and land-based-sources 1.3.6 Oil spills (drilling, exploitation, transport, processing, storage, shipping).
MAC02 – Habitat and Community Modification	
MAC02	2.1. Shoreline change, due to modification, land reclamation and coastal erosion 2.2.1. Disturbance, damage and loss of upland / watershed habitats (>10 m elevation) 2.2.3. Disturbance, damage and loss of coastal habitats (beaches, dunes, coastal vegetation and flood plain habitats to 10 m elevation) 2.2.6. Disturbance, damage and loss of mangrove habitats 2.3.1. Disturbance, damage and loss of coral reef habitats 2.3.2. Disturbance, damage and loss of seagrass habitats 2.4. Disturbance, damage and degradation of pelagic habitats (nearshore <30 m, neritic 30-200m and oceanic >200m depth) 2.6. Introduction of exotic non-native species, invasive and nuisance species
MAC03 – Declines in Living Marine Resources	
MAC03	3.2.1. Decline in populations of sharks and rays 3.2.2. Decline in populations of large pelagics 3.2.3. Decline in populations of small pelagics 3.2.5. Decline in populations of reef and demersal fish 3.3.3. Decline in populations of sea cucumbers 3.3.5. Decline in populations of prawns and shrimp 3.3.6. Decline in populations of lobsters 3.4. Excessive bycatch and discards

A total of 72 impact and causal chains were prepared for each of the 21 priority issues. The purpose of these causal chain analyses (CCAs) were to identify the main causes of the issues to support policy interventions in the region to help mitigate these problems in the region. This analysis identified the cause and effect pathways which were then linked to the main direct causes (e.g. economic sectors, human use), the underlying (social, political, legal) causes and finally the root causes which affect the

behaviour of the relevant sectors (ASCLME/SWIOFP, 2012b). The CCA was conducted at a national level first and then consolidated for a regional level assessment. The 10 common root causes identified through the combined national to regional TDA process were as follows:

- Inappropriate governance
- Economic drivers
- Inadequate financial resources
- Inadequate knowledge and awareness
- Cultural traditions
- Population pressure and demographics
- Poverty and inequality
- Climate change and natural processes
- Voluntary action fills the governance void
- Personal attitude

The latest state of the coast report (UNEP-Nairobi Convention and WIOMSA, 2015) identified three types of threats related to environmental integrity in the marine and coastal environment. These included habitat destruction, pollution and weak governance structures. Governance processes have generally focused on a single sector approach, which discounts an ecosystem approach to managing the marine environment. Some other challenges identified from this report included limited institutional, human and technical capacity in the region alongside a lack of awareness of ecosystem service evaluation and valuation methods as a tool for decision-makers and governance frameworks.

The regional State of the Coast report (UNEP-Nairobi Convention and WIOMSA, 2015) discusses a range of human activities in the ocean seascape in the WIO. Some of these include oil and gas and renewable energy, coastal mining, tourism and recreation, maritime activities (i.e. shipping), urbanisation, coastal development and vulnerability and marine genetic resources and bioprospecting. Associated with these activities is the potential impacts that these might have on the marine environment, especially if not managed properly. The report reflects on some of the potential new sectors of development in the WIO region and the main activities linked to these. Following the Drivers Pressures State Impacts and Response (DPSIR) framework, the state of the coast report identified some of the key pressures and issues in the region. Figure 13 provides an example of the DPSIR for marine biodiversity in the WIO region (source: UNEP-Nairobi Convention and WIOMSA, 2015).

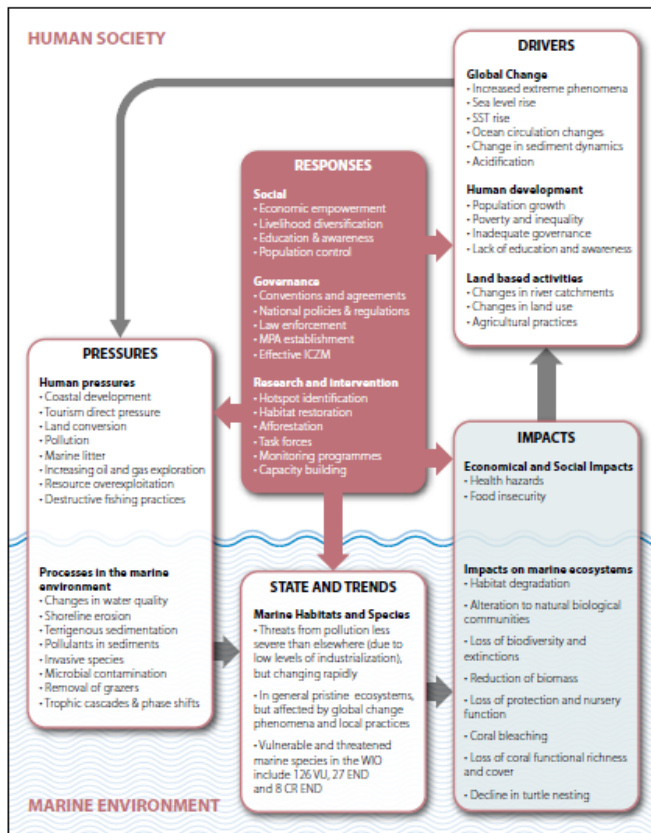


Figure 13: Diagrammatic summary of DPSIR analysis for marine biodiversity in the WIO region. Source: UNEP-Nairobi Convention and WIOMSA, 2015

In linking the previously identified issues in the WIO through the various projects, TDAs and SAPs, and the identification of current issues through stakeholder engagement for the development of a regional MSP strategy (see section 2.6 for details on the stakeholder engagement process and data collection), Figure 14 summarises the main issues/challenges in the WIO region, which encompasses previous (overlapping) challenges identified in the WIO and “new” challenges identified through stakeholder engagement during this project. These key challenges have been identified for prioritisation and strategic action in the MSP strategy (see MSP strategy document).

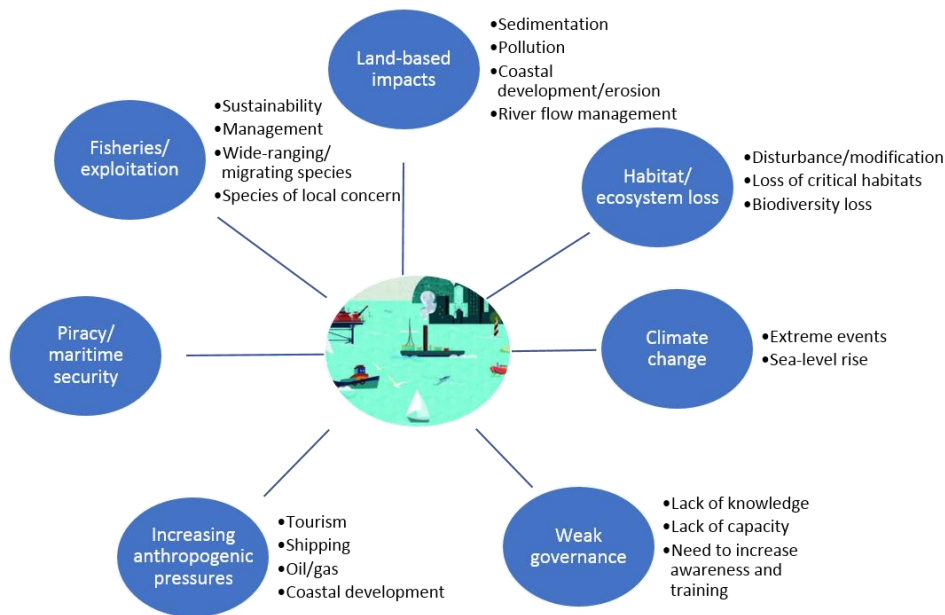


Figure 14: A summary of the main challenges/issues of concern identified in the Western Indian Ocean. These challenges encompass outputs from previous reports, strategic action programs and projects and also stakeholder engagement during the development of the regional MSP strategy.

2.3.1 Example of a systems approach

The ASCLME Transboundary Diagnostic Analysis (TDA) identified and analysed the main issues and challenges in the WIO, referred to as Main Areas of Concern (MAC). The MACs were then prioritised through a consultative process undertaken in Mauritius in mid-2012, resulting in a shorter list of ‘priority transboundary issues’. Each of these priority issues were then explored using causal chain analysis, in an approach that is broadly similar to a root cause analysis. The resulting analysis was reported upon in the TDA: Volume 2, a detailed 190-page report. The causal chain analyses (CCAs) were presented graphically in the report using the diagrammatic convention outlined in Figure 15 below.

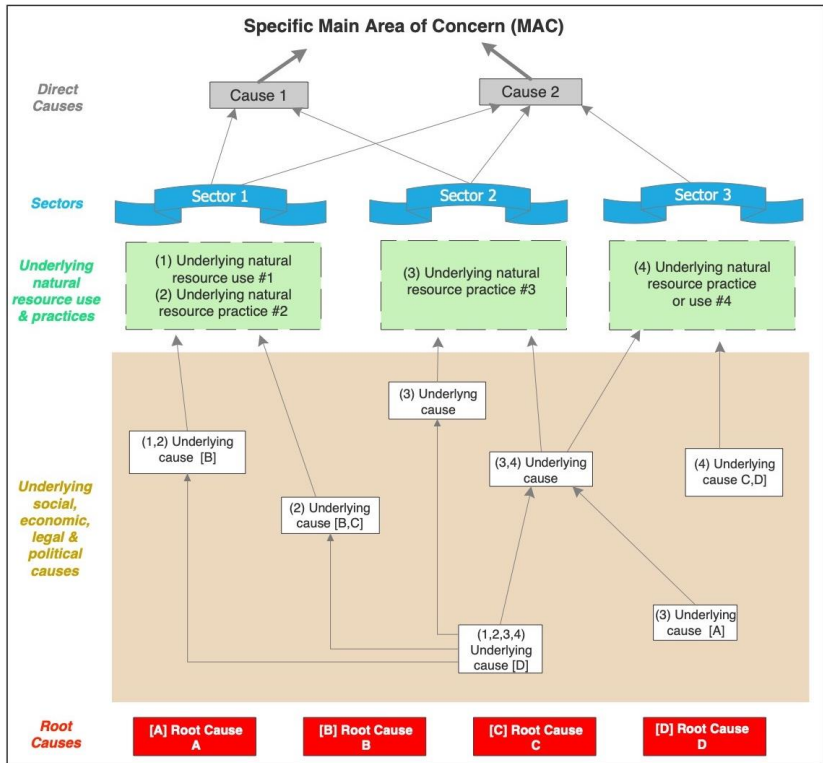


Figure 15: Summary of the diagrammatic conventions used in the ASCLME TDA Causal Chain Analyses.

One of the MACs is summarised here for illustrative purposes, showing the CCA format used in the TDA as well as a causal loop diagram version. MAC 2.3.2: disturbance, damage and loss of seagrass habitats was one of the eight prioritised habitat and biological community modification issues of concern. As noted in the TDA:

Seagrass beds serve an important functional role in tropical marine ecosystems, considered to be of equivalent value to coral reefs. Although the degradation and loss of seagrass beds is frequently overlooked, it can have serious implications for the status of other associated habitats, such as mangroves and coral reefs, and other species that depend on these beds for different ontogenetic life stages. Endangered species, such as the dugong and sea turtles, depend on seagrasses as foraging grounds, and many commercially important fish species utilise seagrass beds as a nursery ground (ASCLME TDA: p.128).

An adapted and simplified version of the CCA is shown in Figure 16 below.

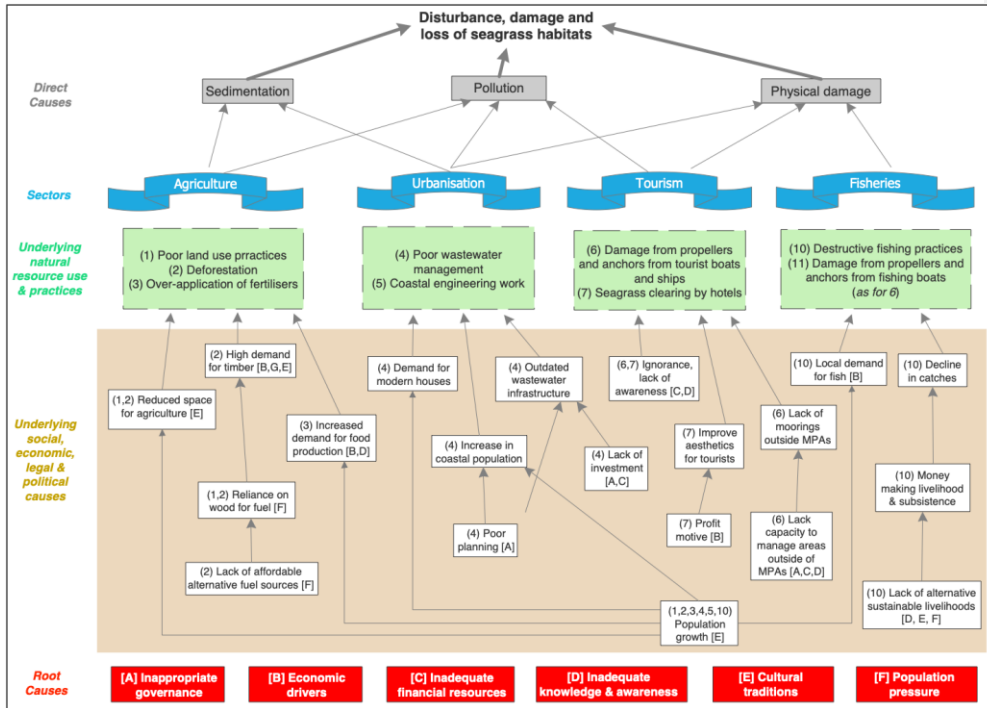


Figure 16: Example causal chain analysis from the ASCLME TDA ('disturbance, damage, and loss of seagrass habitats'). Adapted from ASCLME/SWIOFP (2012b: 198-199).

While CCAs usefully show the multiple interacting causes and diverse drivers, they are more limited in their ability to show interconnections and feedbacks between different components, variables, and domains. This is where other forms of systems diagrams and systems thinking, such as causal loop diagrams (CLDs) are particularly useful. A CLD of the seagrass habitat problem is provided here in two iterations, with an introductory version provided in Figure 17 and the detailed version in Figure 18.

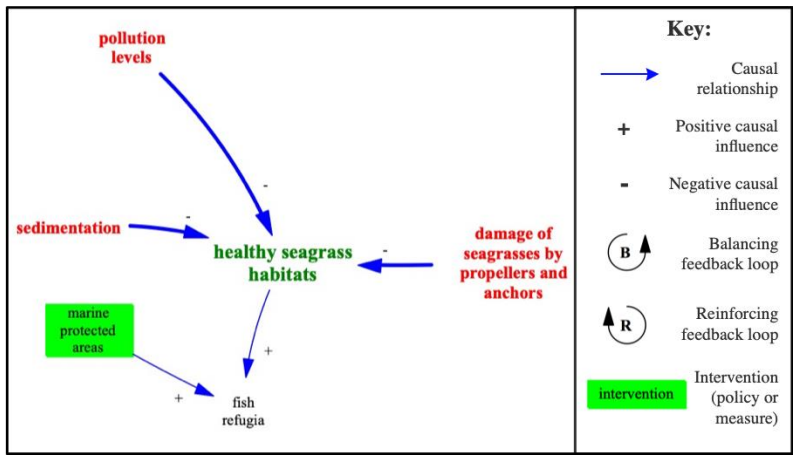


Figure 17: Initial part of the seagrass habitat causal loop diagram (CLD), including a key to understanding the various parts of CLDs.

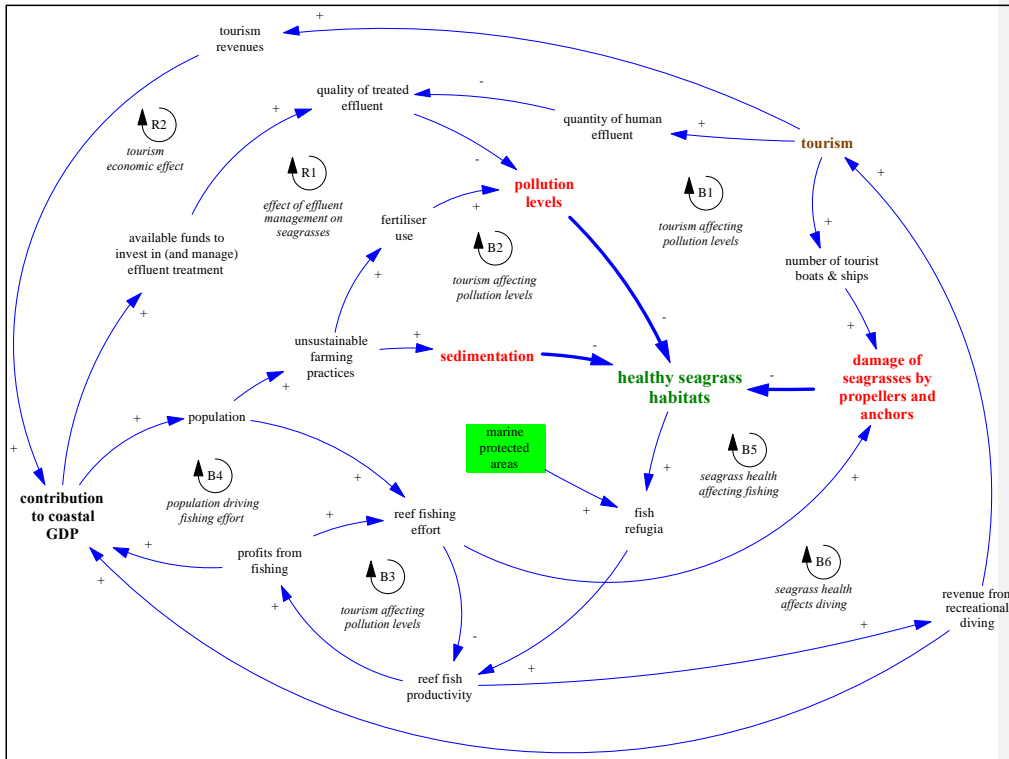


Figure 18: Causal loop diagram (CLD) version of the TDA Causal Chain Analysis for seagrass habitat loss.

2.4 Current projects & initiatives that support MSP in the WIO

There are numerous existing and on-going projects in the region that are either related to MSP practices in the WIO or will support the development of a regional MSP strategy, particularly through established regional networks and collaborations, data collection and knowledge sharing and spatial management. Many of these projects and initiatives align with global guiding principles of MSP, including integrated management networks, scientific conservation planning, broad stakeholder inclusion, economic and social foundation, ecological foundation and institutional foundation.

A non-exhaustive list of past, present and proposed projects and initiatives is presented, with a short summary of each one, in the Appendix (Table A3).

2.5 Regional progress towards MSP in the WIO

At the fifteenth Session of the African Ministerial Conference on the Environment (AMCEN) in 2015, African ministers of environment agreed to “develop a governance strategy, in accordance with the United Nations Convention on the Law of the Sea and regional seas conventions, on oceans and seas in Africa for the effective management of the region’s shared maritime resources and call for a regional conference to address the matter by 2016”. This strategy will be developed in line with the Africa Integrated Maritime Strategy 2050 (AIMS 2050) and Agenda 2063: Africa We Want. In response to this, UNEP, as the secretariat for AMCEN, carried out background studies and a scoping workshop in Zanzibar (23-25 July 2018) to support member States in developing the Strategy. A consultative Meeting was then held at the United Nations Offices in Nairobi, 29-30 November 2018, to discuss possible elements to be included in the Ocean Governance Strategy for Africa (OGSA). This strategy is not directly related to MSP; however, MSP is one of the tools that can be (and is currently) used to support governance frameworks in the region. Therefore, the overarching vision, goals and strategic objectives of the strategy will guide MSP practices in the WIO and will inform the development of a regional MSP strategy. It is essential to harmonise these strategies to provide coherence and synergies towards achieving national, regional, and international goals and targets (e.g. SDG targets).

Key documents and reports that are relevant to the OGSA and that will inform the development of a regional MSP strategy include:

- UNEP/ASOG/WG.1/INF/3 Regional Oceans Governance-Making Regional Seas Programmes, Regional Fishery Bodies and Large Marine Ecosystem Mechanisms Work Better Together
- UNEP/ASOG/WG.1/INF/4 Ocean Policies and Institutional Arrangements for Cross-sectoral Cooperation
- UNEP/ASOG/WG.1/INF/5 Realizing Integrated Regional Oceans Governance-Summary of Case Studies on Regional Cross-Sectoral Institutional Cooperation and Policy Coherence
- UNEP/ASOG/WG.1/INF/6 African Ocean Governance Strategic Blueprint
- UNEP/ASOG/WG.1/INF/7 African Ocean Governance Strategy: Scoping study and gap analysis
- UNEP/ASOG/WG.1/INF/8 2050 Africa’s Integrated Maritime Strategy
- UNEP/ASOG/WG.1/INF/9 Agenda 2063 The Africa We Want

- UNEP/ASOG/WG.1/INF/10 African Union Commission-Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa
- UNEP/ASOG/WG.1/INF/12 Regional Seas Programmes Covering Areas Beyond National Jurisdiction
- UNEP (2018) Annotated outline for the development of the Ocean Governance Strategy for Africa
- Africa Blue Economy Strategy (AU-IBAR, 2019)

MSP policies and governance should also align with the latest developments linked to management tools and governance frameworks for areas beyond national jurisdiction (ABNJ) (Wright et al., 2019). In response to two COP decisions (CP.9/10. 2 and CP.9/10. 3), the NC are mandated to (1) “cooperate with existing regional institutions on ocean governance and the conservation of marine biodiversity in adjacent areas beyond national jurisdiction ... to promote blue economy pathways in the Western Indian Ocean region” and (2) “in collaboration with partners, prepare a report on the feasibility, options and scenarios for the establishment of marine protected areas in areas beyond national jurisdiction”. Large progress has been made to identify relevant institutional arrangements and cross-sectoral cooperation towards developing governance frameworks for ABNJs (UNEP-WCMC, 2017). A technical document has also been produced to assess the capacity for area based planning in areas beyond national jurisdiction for the Nairobi Convention, among others (Macmillan-Lawler et al., 2018). There is likely to be large overlap in the capacity requirements for management of ABNJ with MSP activities, considering the need for transboundary management in MSP. Therefore, this capacity assessment conducted in 2018 for planning in ABNJ can and should be applied to a regional MSP strategy. It is also important to understand the ecological connectivity between ABNJs and the EEZs of WIO member states (Maina et al., 2020; Popova et al., 2019) and that local and regional MSP activities should consider these connections and how it will influence spatial management in the WIO (Poulin, 2019; Rochette and Wright, 2015; Wright et al., 2019). Any legally binding frameworks and policies regarding ABNJ in the WIO should also align with the regional MSP strategy for the region (Figure 19)². Details of the various regional and international agreements and

² United Nations Convention on the Law of the Sea (UNCLOS); General Assembly of the United Nations (UNGA); Division for Ocean Affairs and the Law of the Sea (DOALOS); **Shipping**: The International Maritime Organization (IMO); **Fisheries Management**: Regional Fisheries Bodies (RFBs) and FAO; **Whale Conservation and Management**: The International Whaling Commission (IWC); **Deep Sea Mining**: The International Seabed Authority (ISA); **Cable Laying**: The International Cable Protection Committee (ICPC); **Marine Environmental Protection**:

institutions that are related to governance and conservation of biodiversity in ABNJ are provided in (UNEP-WCMC, 2019a, 2017). For example the United Nations General Assembly (UNGA) provides the platform for discussions related to ABNJ at the international policy level (UNEP-WCMC, 2019b). The UNGA have started formal negotiations to create a new International Legally Binding Instrument (ILBI) under the UN Convention on Law of the Sea (UNCLOS), to conserve and sustainably use marine biological diversity in ABNJ (UNGA resolution 71/249 (2018) (UNEP-WCMC, 2019b). These frameworks, agreements, institutional settings and newly adopted legally binding instruments will need to be considered in the MSP strategy for MSP implementation at a national level and across sovereign boundaries, considering the interconnectedness of marine ecosystems.

UN Environment, the Regional Seas Programmes (RSP)40 and biodiversity-related conventions (such as the CBD) and the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

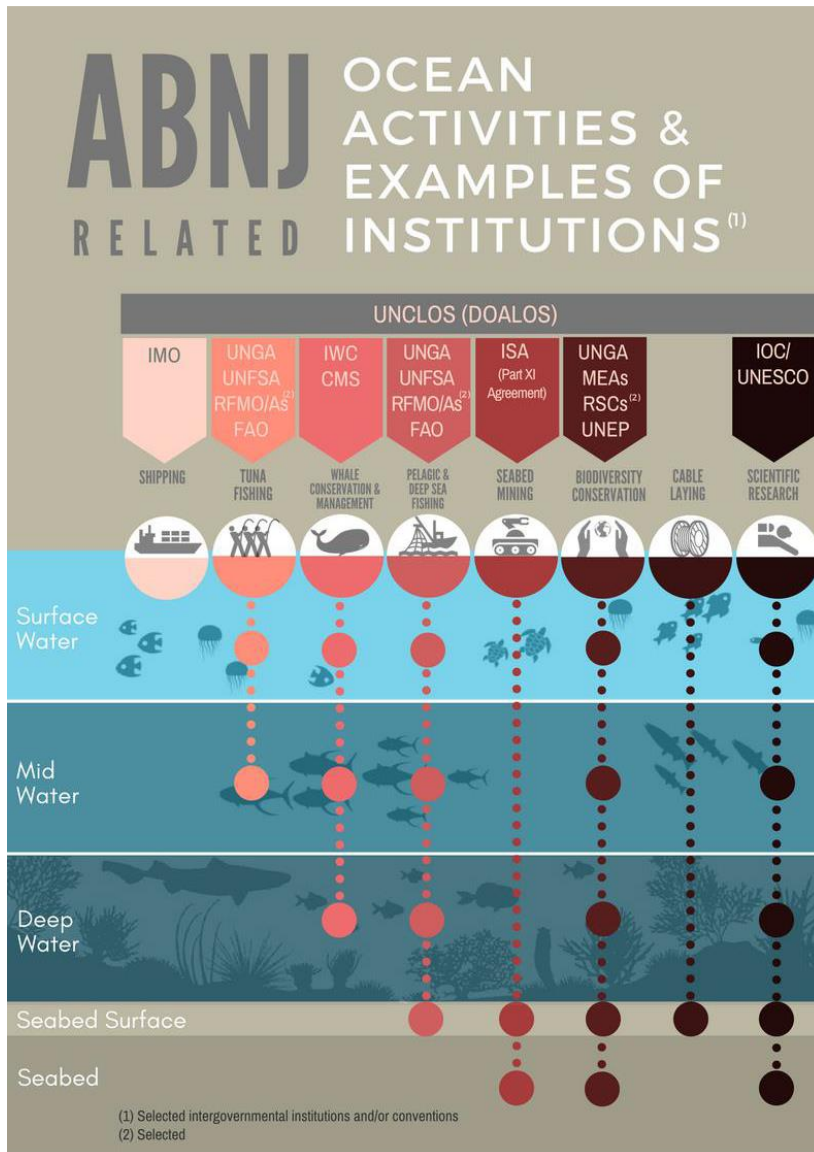


Figure 19: Multiple ocean uses and examples of institutions related to ABNJ © Legal Atlas. Source: UNEP-WCMC (2017). See the footnote2 for additional abbreviations.

Numerous integrated coastal zone management (ICZM) initiatives have been developed through the WIO, with many member states developing their own management plans at a national level, including the establishment of ICZM committees and governance frameworks. The Nairobi Convention Contracting Parties have also made significant progress in the negotiation of the Integrated Coastal Zone Management (ICZM) Protocol which will be adopted before the next COP (Nairobi Convention, 2020). Once adopted, the ICZM Protocol would provide a framework for regional and national integrated coastal zone management in the WIO. On 27 March 2019, a key milestone was achieved in the evolution of a legal framework for ICZM in the WIO region. The Contracting Parties to the Nairobi Convention, during the fourth round of negotiations at a meeting held in Dar es Salaam, Tanzania, finally agreed on the text of the Protocol. Dr Akunga Nebat Momanyi (University of Nairobi School of Law) provided an update on the process which suggests that the agreed text of the ICZM Protocol defines “Integrated coastal zone management as a dynamic and participatory process that involves all relevant stakeholders aimed at planning, managing, conserving and protecting coastal and marine ecosystems and resources; taking into account their fragility and sensitivity, interactions, the nature of uses as well as their impacts with a view to ensuring sustainable development (Article 1)”. The ICZM frameworks have evolved to broaden their scope into the marine domain which has transpired into MSP frameworks and policies, whereby the definition of ICZM has expanded to include all activities (coastal and marine) within a country’s EEZ. With the development of this protocol it will be crucial to align and combine policies and governance structures of MSP with the regional ICZM protocol, to provide a seamless integration of spatial management plans at the land-sea interface (Nairobi Convention Secretariat, WIOMSA and CSIR, 2017). It has also been suggested that MSP should where possible be integrated to river-basin management plans to address the physical interaction between land and sea especially from pollution from land-based sources and activities (Nairobi Convention, 2020). For example, the integration of ICZM and Integrated River Basin Management (IRBM) under the WIOSAP project could enable institutional links to be made between the authorities responsible for planning across the land/sea ecosystems (Nairobi Convention, 2020).

Good practices for regional MSP

The following text box is from the Final Report on Cross-border cooperation in MSP (Carneiro et al. 2017):

“GOOD PRACTICES IN SUPPORT OF CROSS-BORDER COLLABORATION IN MARINE SPATIAL PLANNING

A number of other reviews of MSP have identified generic good practices (*inter alia* Schultz-Zehden and Gee (2013), WWF (2014), UNEP (2017) (see Appendix 3). A study commissioned by WWF (2014), for example, concluded that most successful marine spatial plans share several characteristics that may be interpreted as good practices. These were identified as:

1. clear legal authority to undertake MSP
2. strong political leadership
3. adequate financing to complete at least a first round of MSP
4. effective stakeholder engagement throughout the MSP process
5. clear, measurable management objectives
6. use of best available information, including local and traditional knowledge, in the analysis phase of MSP

An overarching conclusion emerging from the case studies, and a dominant theme in the presentations and discussions at the 2nd International MSP Conference held at UNESCO, Paris on 15-17 March 2017, is that the practice of MSP is as much, often more, a social and political process, with major economic consequences, as it is a scientific and technical challenge. This conclusion has implications for cross-border collaboration in MSP and thinking through how best to address the priorities and challenges that lie ahead in a given marine area.

This overarching conclusion leads to the realisation that most MSP initiatives are primarily political processes; and that the usual limiting factor to effective MSP is the capacity to practice the ecosystem approach. As identified in Section 4, this is because the institutions with roles and responsibilities over marine areas typically have sectoral mandates and their experience in cross-border and trans-sectoral management is uneven and often weak. Another reason for weak capacity in the practice of the ecosystem approach is that the major challenges lie not in the application of knowledge generated by natural sciences but in the politically charged process of negotiating conflicts among interest groups and crafting the processes and rules by which destructive and unsustainable uses of marine goods and services are to be achieved. Given this context, good practices that encourage cross-border cooperation in MSP include the following.

- Good practice 1: Invest in a deep understanding of the existing governance system
- Good practice 2: Invest time and resources during the MSP processes in building trust and a sense of common purpose among all parties involved
- Good practice 3: Adopt an issue-driven approach to MSP
- Good practice 4: Adopt a long-term perspective
- Good practice 5: Manage expectations for stakeholder involvement
- Good practice 6: Design monitoring and evaluation system that analyses program performance, learning and progress towards goals over the long-term”

Examples of regional MSP

Region	Source	Website
Baltic Sea	Baltic Marine Environment Protection Commission (Helsinki Commission - HELCOM)	helcom.fi
Canadian North Pacific	Marine Plan Partnership for the North Pacific Coast (MaPP)	mappocean.org
Coral Triangle	Coral Triangle Initiative	www.coraltriangleinitiative.org
Mediterranean	UNEP-Barcelona Convention	www.unep.org/unepmap/
South West Atlantic	Benguela Large Marine Ecosystem (BCLME) MARISMA	www.benguelacc.org/index.php/en/marisma
USA (Mid East coast)	Mid-Atlantic Regional Planning Body (RPB)	roa.midatlanticocean.org
USA (New England)	Northeast Regional Ocean Council (NROC)	neoceanplanning.org/plan/

2.6 Stakeholder assessment for MSP in the WIO

There was an extensive Stakeholder mapping assessment from the Wio-Lab project. All relevant stakeholders for each main area of concern (MAC) were identified, and a multi-level assessment of their role and influence on the MAC was conducted. This assessment provides a great foundation for the identification of key stakeholders in the WIO region, particularly for MSP as there will be some degree of overlap from relevant sectors (e.g. fisheries, transport).

At the WIO Regional MSP workshop held in Dar es Salaam, Tanzania in March 2019, the Focal Points of the Nairobi Convention, and those who participated in the workshop recommended that the development of a regional MSP Strategy be led by a Technical Working Group (TWG) hosted by the Nairobi Convention Secretariat. The TWG (Appendix Table A5), including two representatives from each WIO member state, are thus key stakeholders and role-players in the development of the regional MSP strategy. Furthermore, an initial institutional assessment to identify key role players for MSP activities in the WIO has been conducted for the development of a regional MSP strategy. However, the identification of relevant stakeholders is on-going and thus far includes 25 organisations and institutions (Appendix Table A6).

Additional details of the process of stakeholder identification and engagement is provided in the regional MSP strategy document (UNEP-Nairobi Convention, WIOMSA, Nelson Mandela University, and Macquarie University, 2021. A regional Marine Spatial Planning Strategy in the Western Indian Ocean. 82 pp.) but is repeated here for ease of understanding.

One of the main priorities of this project was to be as inclusive and transparent as possible, to develop a strategy that addresses the main needs and challenges in the Western Indian Ocean. Through the situational assessment, a preliminary stakeholder mapping exercise was conducted to identify the high-level institutions associated with MSP in the region, and to identify key stakeholders that are either currently involved in MSP in the WIO or are likely to be key role players in future MSP initiatives. A stakeholder invitation letter was sent to a preliminary list of stakeholders (working in the marine and coastal environment in the WIO), to introduce the project and to identify those who would like to contribute to the development of the MSP strategy. A snowball effect (asking stakeholders to identify additional relevant stakeholders in the region) was implemented to identify new stakeholders that would be interested in contributing to a regional MSP strategy. The TWG were also responsible for identifying additional stakeholders in their respective countries, and for communicating the

development of the strategy in their context. Stakeholders were also asked to answer the same initial discussion questions as the TWG, as seen below:

1. What do you think should be included in an MSP strategy for the WIO region?
2. How do you foresee the uptake and implementation of a regional MSP strategy in your country?
3. In what way do you envision a regional MSP strategy will assist in supporting the objectives of your country?

At the time of writing this document (17 August 2021), a total of 108 stakeholders have been identified and included in the engagement process (stakeholder invitation, discussion questions, questionnaire and feedback on the draft strategy). Responses to these questions were used to identify preliminary challenges/key issues in the region, goals, objectives, strategies and actions for MSP, which were used to inform the development of the online questionnaire where respondents were asked to rank the importance and relevance of these.

2.7 Data availability for MSP in the WIO

The Swedish Agency for Water Management (SwAM), working with the Nairobi Convention Secretariat and the MSP TWG are conducting a detailed data audit as part of the deliverables for the WIOSym project, whereby the Symphony tool (Hammar et al., 2020) will be used to map human pressures and ecological impacts for MSP in the Western Indian Ocean. Nelson Mandela University are collaborating with the SWaM team throughout the process of the MSP strategy development, by aiming to reduce stakeholder fatigue by coordinating and combining meetings, where possible, sharing of data/information (related to the project) to avoid repetition of work, feedback sessions regarding stakeholder engagement to improve effectiveness of the process (methods of approach, reducing constraints with online/digital platforms etc.) and networking in the region.

2.7.1 Data and knowledge sharing platforms

There are numerous initiatives related to the development of regional databases and knowledge sharing platforms in the WIO, that will be able to support MSP activities in the region. Some of these initiatives are included here:

- NC Clearing House

In 2018, Nairobi Convention hired a consultant to identify datasets available for the WIO region that could be included in the Nairobi Convention's Clearing House

Mechanism (CHM). The work is yet to be finalized and UNEP-WCMC is ready to work with interested partners in developing a metadata inventory for the region. Some of the products available include an interactive dashboard for MPAs in the WIO. Other maps include the global distribution of saltmarshes, distribution of locally managed marine areas, Port index, undersea cables, seagrass species richness, global distribution of coral reefs, among others.

- MASPAWIO (coordinated by CORDIO): MASPAWIO provides access to marine spatial datasets, providing layers useful for marine spatial planning, management and research, from multiple primary and secondary sources, and contributing compiled information into other regional and global repositories.
- ODINAFRICA: The Ocean Data and Information Network for Africa has been one of the most successful projects of the International Oceanographic Data and Information Exchange programme (IODE) of the Intergovernmental Oceanographic Commission of UNESCO (IOC). The Ocean Data and Information Network for Africa (ODINAFRICA) brings together more than 40 marine related institutions from twenty-five countries in Africa (below) to address the challenges faced in accessing data and information for coastal management:
- WIOSEA: Western Indian Ocean Sustainable Ecosystem Alliance (WIOSEA), which was established through the Agulhas Somali Current Large Marine Ecosystems. The WIOSEA was proposed to coordinate regional research and management activities without creating new institutions and arrangements while ensuring full use of existing mandates and mechanisms already in existence. It was expected that WIOSEA would be able to act as the coordinating body for many of the activities that will be a part of the forthcoming SAP implementation stage.
- OceanPlus library (global marine and coastal datasets of biodiversity importance) – WCMC
- Mico (Migratory connectivity in the ocean)
- Regional resource hub – Eastern and Southern Africa (BIOPAMA). NB **Blue Planet Hub**. (https://esahub.rcmr.org/en/?utm_source=BenchmarkEmail&utm_campaign=BIOPAMA_Monthly_Update_%2f_October_2020&utm_medium=email)

2.7.2 Examples of regional data

- Weatherdon et al. 2016_Introduction to marine datasets of biodiversity importance in the Western Indian Ocean

- UNEP/NC (2020). Data and the Western Indian Ocean- Overview of oceanographic data and research for improved governance in the Western Indian Ocean
- Lagabrielle et al. 2012. Assembling data for coastal and marine spatial planning in the Western Indian Ocean - Section I: Pelagic bioregionalisation. Prepared for the A.S.C.L.M.E./Agulhas Somali Current Large Marine Ecosystem project, GEF/UNDP/UNOPS. 20 p. (Lagabrielle, 2012)
- ASCLME - MEDA Reports
- Marine Atlas
- The regional state of the coast report
- WIOMER strategy:
 - 51 priority coastal and open ocean seascapes and sites of special significance—27 of global significance, 7 regionally outstanding, 10 subregionally important, and 6 deepwater zones for focused fisheries and cetacean management.
 - Conservation targets have been set for many marine habitats, watersheds, marine species, and ecological processes.
 - Drivers of change and threats to marine biodiversity and fisheries have been identified and potential solutions evaluated.
- National Assessments (e.g. SA NBA), NBSAPs
- The Western Indian Ocean Marine Science Association (WIOMSA) has a comprehensive database on the regional research and academic institutions.
- SOLSTICE

3 Latest updates that support MSP implementation in the WIO

Please note that activities related to MSP in the WIO, as detailed below, were accurate and updated at the time of writing an earlier draft of this document (April 2021).

3.1 Regional update on MSP activities

Some examples of activities related to MSP in the WIO:

Several trainings on MSP in a number of WIO Countries, carried out by Nairobi Convention Secretariat and various partners. A list of MSP training events is provided in the Appendix (

- Table 11).
- Scenario Workshop for the MSP for the Joint Management Area (JMA) between Mauritius and Seychelles
- Establishment of MSP Technical Working Group (TWG)
- The Nature Conservancy (TNC) MSP projects - MSP scoping/planning by government in 3 countries (Kenya, Mauritius, Tanzania). Completed in Seychelles. TNC has had a pre-proposal approved for ~\$8 million USD from the German government (IKI Funds) to support MSP in Kenya, Mauritius, and Tanzania
- MARISMA (Benguela but includes SA)
- IOC-UNESCO. List of trainings/workshops/meetings:
 - Workshop on marine spatial planning and sustainable blue economy in Mozambique. (Portuguese)- 27 October 2020
 - Workshop on environmental pressures, cumulative impacts and tools to support decision-making in Mozambique (Portuguese)-26 Oct 2020
 - Online High-level meeting on marine spatial planning in Madagascar (French)
 - Online training to build the capacity of institutions and stakeholders involved in the process of marine spatial planning in Kenya (English) - 21-22 October 2020
 - Training on marine spatial planning and sustainable blue economy in Tanzania (English) - 21 Oct 2020
 - Online high-level meeting on sustainable blue economy in Madagascar (French) - 20 Oct 2020
 - Workshop on marine spatial planning practices and methods in Mauritius (English) - 20 Oct 2020
 - Online consultation on strengthening knowledge on environmental pressures in Kenya (English) - 14-15 October 2020

3.2 Existing policy frameworks related to MSP

The policy and governance assessment of the ASCLME TDA and Chapter 33 of the Regional State of the Coast Report (UNEP-Nairobi Convention and WIOMSA, 2015) discuss in the detail the policy and governance structures, at national, regional and international scales, related to marine and coastal resources in the WIO. Major governance weaknesses impinging on the coastal and marine

environment of the WIO region have been identified and include policy and legislative inadequacies, limited institutional capacities, inadequate awareness, inadequate financial resources and mechanisms, as well as poor knowledge management (UNEP/Nairobi Convention Secretariat and WIOMSA 2009a).

A regional assessment of the progress on the establishment of policies linked to the BE and MSP was conducted for the WIO region, by engaging in regional meetings and collecting data and information from regional experts and Focal Points of the Nairobi Convention (Nairobi Convention Secretariat, WIOMSA and CSIR, 2017). MSP receives a lot of impetus from a range of national policies, broadly grouped into environmental legislation, fisheries regulations and other frameworks for cross-sectoral management such as Integrated Coastal Zone Management (ICZM) (Nairobi Convention, 2020). There is also scope for the development of MSP frameworks and policies under international agendas and regulations. For example, the legally binding United Nations Convention on the Law of the Sea (UNCLOS) has implications for MSP in relation to rights to transit passage, the freedom of navigation, fishing and the laying of submarine cables and pipelines, traffic separation schemes in shipping, safety zones around installation and artificial islands (Nairobi Convention, 2020; UNCLOS).

Results from the assessment in 2017 demonstrated that national development of BE and MSP policies was still in the early phases, except for a few countries (Nairobi Convention Secretariat, WIOMSA and CSIR, 2017). Considering the development of ocean and coastal policy, blue economy policy and MSP policy, small island developing states were the most progressive (Nairobi Convention Secretariat, WIOMSA and CSIR, 2017), with Seychelles, Mauritius and South Africa (even though not an island nation) being the most advanced, at the time. A detailed assessment and summary of the results of the progress of the policy cycle are provided in the Nairobi Convention Secretariat, WIOMSA and CSIR (2017) (e.g. Figure 20) and Nairobi Convention (2020). The policy cycle for MSP, where applicable, generally ranges from a state of conceptualisation to initiation and early stages of completion, for WIO countries. Regardless of the current status, policy development among the more advanced countries demonstrated very different processes, priorities and initial objectives (Nairobi Convention Secretariat, WIOMSA and CSIR, 2017). It was then recommended that a “regional expression of “principles” regarding the policy process would improve the overall development cycle and may improve the consistency of policies and thereby reducing future transboundary alignment or actions relating to the use of ocean space”. As such, the regional MSP strategy for the WIO will aim to address this issue by providing overarching guiding principles and objectives to support effective MSP in the region.

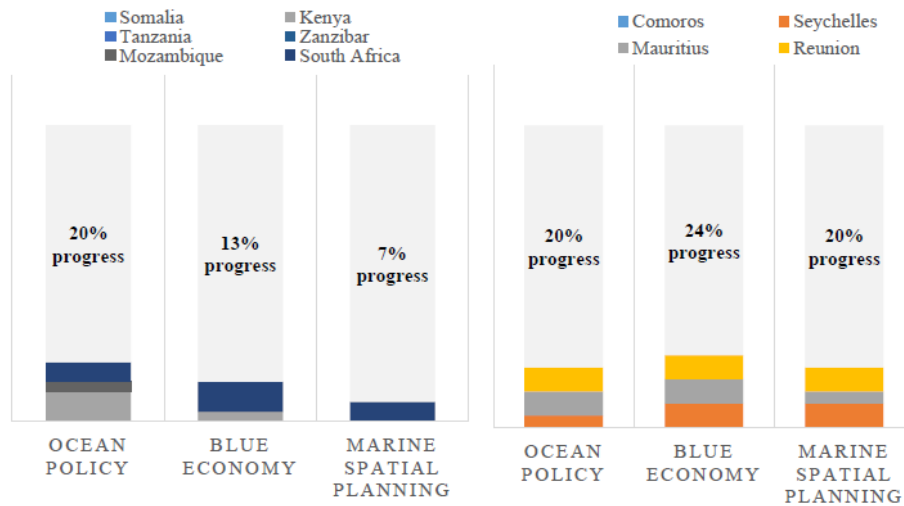


Figure 20: Progress towards full implementation of policies related to ocean management, the Blue Economy and marine spatial planning in the Western Indian Ocean. Source: Nairobi Convention Secretariat, WIOMSA and CSIR (2017).

3.3 National status updates towards MSP implementation

The following section summarises information from previous regional MSP workshop outputs and responses from the TWG and identified stakeholders throughout the project. It is noted that the response rate during this project was poor, which resulted in information gaps for country-level updates. The updates provided below are based on the best available information at the time of drafting this document.

3.3.1 Comoros

A National Plan for Integrated Coastal Management was finalised in 2010 under the EU-funded ReCoMap project. No formal MSP process has yet begun.

3.3.2 France

The EU Directive on Maritime Spatial Planning (2014/89/EU) requires all coastal European Union Member States to prepare cross-sectoral maritime spatial plans by 2021. The Ocean Metiss project on

Réunion Island, which aims at developing an efficient decision-making tool for long-term sustainable development of the blue economy, also directly contributes to MSP.

3.3.3 Kenya

Projects and activities:

- According to Executive Order No 1 of June 2018, “Organization of the Government of the Republic of Kenya” issued by the President on 5th June 2018, the State Department for Fisheries, Aquaculture and the Blue Economy, under the Ministry of Agriculture, Livestock, Fisheries and Irrigation, is given authority for *inter alia*:
 1. Co-ordination of development of policy, legal framework and institutional framework for the fisheries industry and the Blue Economy; and
 2. the coordination of Marine Spatial Planning and Integrated Coastal Zone Management.
- A Presidential Blue Economy Standing Committee to oversee actualization of prioritized interventions –fisheries & aquaculture, maritime transport & logistics services, culture and tourism, and extractives (oil and gas, minerals and energy)
- A flagship programme on MSP is being developed in Kenya and the programme incorporates planning of oceans and coastal terrestrial areas
- The elements of MSP that already exist in Kenya include (i) the Ocean Teacher Global Academy project of IOC-UNESCO where KMFRI hosts the regional training centre for Anglophone countries and held an MSP training in September 2018 which was co-sponsored by the Nairobi Convention; (ii) County Spatial Planning of which counties are expected to prepare a ten-year GIS-based County Spatial Development Plan; (iii) Marine Zoning Activities including marine parks, marine reserves and community managed areas.
- To date, only one of the coastal Counties has completed its Spatial Plan: The Lamu Spatial Plan (2016-2016) is a comprehensive plan addressing the broad range of development needs for the County. Although it is not a marine spatial plan per se, the plan does address the needs of coastal resource users and activities. The GIS maps indicate clearly that a significant amount of marine focused planning has been included in the overall plan. Kwale county is in the process of developing the MSP.
- KILIFI county is developing their MSP through WIOSAP project.

The Inter-Ministerial MSP Team held its 1st meeting on 10 January 2019. Institutions represented:

- State Department of Fisheries, Aquaculture & the Blue Economy (Chair)
- State Department of Shipping and Maritime Affairs (Co-Chair)
- State Department of Environment
- National Environment Management Authority
- State Department of Transportation
- Kenya Marine and Fisheries Research Institute
- Kenya Wildlife Service
- Ministry of Environment
- Ministry of Lands
- Kenya Ports Authority
- The National Treasury
- Office of the Attorney General
- The Nairobi Convention (Advisor)

From this meeting it was agreed that the next steps should include the development of a road map and implementation plan for MSP activities in Kenya. Plans for the draft road map for MSP in Kenya include:

1. Gathering and consolidating spatial data at local and national level on marine biodiversity, ecosystem services and all sectorial ocean space uses
2. Mapping marine biodiversity, ecosystem services, and current and future demands on marine space, and analysing overlaps at various government levels
3. Developing participatory MSP scenarios at various levels (with the aid of multi-stakeholder dialogues and decision support tools) to evaluate trade-offs and identify the most appropriate multiple-objective scenarios across different sectors and interest groups that are best able to achieve a balance between conservation and sustainable use.
4. Formulating recommendations to integrate MSP into national and local strategies, policies, and institutional frameworks for the management and governance of marine biodiversity and resources.

5. Implementing selected MSP scenarios in selected pilot areas and capturing and documenting lessons learned so that these results can be fed into MSP processes at various levels).
 6. Initiating and promoting cross-sector and (inter-)institutional management and governance regimes that are necessary to implement and institutionalize MSP at various levels over the long term.
 7. One of the commitments made by Kenya at the Sustainable Blue Economy Conference (SBEC) (in Kenya, November 2018) was the establishment at the University of Nairobi of an Institute for Blue Economy and Ocean Studies (IBEOS) (The Maritime Centre/Fishforce Academy). The main purpose of the Maritime Centre is to undertake research and offer technical assistance and capacity building in all matters relating to the ocean, and the sustainable use of its resources. In this context, the Nairobi Convention Secretariat is partnering with the Maritime Centre of the University of Nairobi to assess the current status of sectors that contribute to the blue economy in Kenya (see UNEP Draft concept note for additional details³)
- A MSP Scoping Study was conducted under the Kenya Marine Fisheries and Socioeconomic Development Project (KEMFSED). The scoping study provides a baseline of existing MSP activities in Kenya and identifies gaps that require intervention to ensure sustainable management of marine fisheries resources and achievement of broader environmental objectives including potential areas of current and future conflict. The study covered inshore waters in Kwale, Mombasa, Kilifi, Lamu, and Tana River Counties, territorial seas and the exclusive economic zone.
 - TNC has had a pre-proposal approved for ~\$8 million USD from the German government (IKI Funds) to support MSP in Kenya, Mauritius, and Tanzania. From the IKI funds, TNC plans to allocate ~\$2 million USD to support MSP in Kenya.

³ Online document: Draft Concept Note on: Contribution of Maritime Sectors to Kenya's Blue Economy: Values, Potentials and Governance Frameworks, June 2020

- The two projects –KEMFSED and TNC, will jointly contribute to implementation of a single integrated national MSP process
- Tuda et al. (2014) - A study in Kenya that applied MSP to resolve conflicts in a multi-use coastal area (Mombasa). This process was supported by using geographic information systems to identify overlapping coastal uses and conflicts hotspots, and multicriteria decision analysis (MCDA) and optimization for decisions and allocation of activities. Three important objectives that build a foundation for future planning of Kenya’s coastal waters were achieved: 1) engaging competing stakeholders; 2) illustrating how MSP can be adapted to aid decision-making in multi-use coastal regions; and 3) developing a draft coastal use allocation plan.
- Working towards locally managed marine areas (LMMAs) in Kenya (Kawaka et al., 2017; Rocliffe et al., 2014)
- Local capacity needed at a national level for MSP implementation: Legal & Institutional Framework; Funds, Stakeholder engagement and conflict resolution framework; standardize tool for collecting data from different agencies ,integration of existing tools such MSP ,EIA,SEA, MPA and incorporation of new tools such Area based tools, VMEs, APEIA.

3.3.4 Madagascar

Joint coordination of the MSP between Directorate of Coordination, Planning and Development of the Maritime Territory (DCPVTM) and Department of Ocean Governance (DGO) and joint implementation with the sectors concerned:

1. Directorate of Coordination, Planning and Development of the Maritime Territory or DCPVTM (at the Ministry Planning and Land use and civil engineering - MATP) which is responsible for developing and applying the tools for planning the maritime space and carrying out discussions and researches on the development of this space.
2. Department of Ocean Governance (at the Ministry of Agriculture, Livestock and Fisheries - MAEP)
 - Production of the Atlas of four coastal regions of Madagascar
 - Ongoing production of the Atlas of the other coastal regions of Madagascar
 - Technical, legal and institutional study of the establishment of MSP in progress
 - Establishment of the geoportal on the atlases of Madagascar

- Participation in various Regional training workshops on MSP in Mauritius and Tanzania
- Organization of a series of training on MSP according to the Methodology of "Blue Planning" in three regions in Madagascar

3. National Commission for Integrated Coastal Zone Management or CN-ICZM attached to the Prime Minister's Office

Elaboration of ICZM framework documents (ICZM decree, national policy and strategy, national action plan);

4. Maritime Information Fusion Center or CFIM attached to the Prime Minister's office

Atlas of the islets/isles/islands of Madagascar in progress

3.3.5 Mauritius

1. Development of the Ocean Economy roadmap in 2013 (Nairobi Convention Secretariat, WIOMSA and CSIR, 2017)
2. Structure of MSP in Mauritius including the Ministry of Defence, Coordinating Committee, Technical Working groups and other stakeholders. focus on new economic activities: aquaculture sites, marina development, and tourism and recreational activities
3. Overview of the MSP Process including the pre-planning phase, assessment of existing and upcoming conditions and strategies towards implementation.
4. The Joint Management Area Demonstration project between Mauritius and Seychelles for which an agreement was signed in January 2018 between the Mauritius-Seychelles Joint Commission on Extended Continental shelf and UNDP for the implementation of a joint database systems that will facilitate the management of the joint area.
5. Examples of MSP efforts including MPA and fishing reserves, conservation areas in Rodrigues, UNESCO Heritage site Le Morne, MSP in Action through a concerted approach through working groups, proposal and assessment of offshore aquaculture sites (meeting of MSP working groups on New Economic activities to discuss relocation of existing and conflicting aquaculture sites).
6. Ocean observatory which is an online platform which including observations, systems and catalogue and planning

7. Demonstrating Innovative Ocean Governance Mechanisms and Delivering Best Practices and Lessons for Extended Continental Shelf Management within the Western Indian Ocean Large Marine Ecosystems (UNDP-Joint Management Area Demonstration Project)

Local capacity needed for implementation of MSP at a national level: Data collection, processing and analysis, specific tools for MSP.

3.3.6 Mozambique

In Mozambique, the relatively new (5-years old) Ministry of the Sea, Inland Waters and Fisheries (MiMAIP) is doing a reform in the country's legal and policy framework related to this sector and has approved the following:

- Sea Policy and Strategy (POLMAR) of 15th August 2017;
- Sea Law Nº 20/2019 of 8th November;
- Decree 21/2017 - Regulation that establishes the Legal Regime for the Use of the National Maritime Space (RJUEM);
- Presidential Decree 2/2017 of 10 July which redefines the scope and roles of Sea, Interior Waters and Fisheries;
- The Decree 43/2003 of 10 December, which is the Maritime Fisheries Regulation, is currently under review and it should be published very soon;

In addition, the regulation of management and planning of coastal zones and beaches is underway and the regulation to ban the plastic bag is currently underway in Mozambique.

Older regulations related to MSP include:

- - Decree 45/2006 of 30 November for the Regulation for Prevention of Pollution and Protection of the Marine and Coastal Environment;
- - Fisheries Law Nº 22/2013 of 1 November

The MSP is governed by the Regulation establishing the Legal Regime for the Use of the National Maritime Space (RJUEM), and according to it the MSP content will have: (1) Geospatial representation of the order that establishes the spatial and temporal distribution of existing and potential values, uses and activities, (2) Implementation rules associated with geospatial representation that identify

restrictions of public utility, safeguarding and protection regimes for natural and cultural resources and good practices to be observed in the use and management of the national maritime space.

Projects and activities:

- The Mozambican Government approved in November 2019 the Decree for creating the Blue Economy Development Fund, called ProAzul. Together with the World Bank, through the PROBLUE line, ProAzul is undertaking an assessment on the situation and perspectives of the sectors that integrate the blue economy.
- Activities related to MSP of which Mozambique participated in including the Sustainable Ocean Initiative (SOI) training of trainers workshop in 2016 in Korea, a workshop on MSP in 2016 in Madagascar, a training on planning and mapping marine and coastal areas in 2017 in Portugal, a workshop on community knowledge and Marine Spatial Planning for the Portuguese speaking regions in 2018 in Cape Verde, the international forum on Marine Spatial planning for countries along the Maritime Silk road and Island Countries in 2018 in China, and a regional training course on MSP in Kenya in 2018
- Actions towards MSP development includes the creation of consultative committee, development and elaboration of Terms of Reference for the National Marine Spatial Plan, mapping out of activities in the sea and the potential activities.

The MSP aims to:

1. Establish a maritime spatial planning, respecting the principles of integrated management and sustainable development.
2. Promote the sustainable, rational and efficient economic exploitation of the sea and marine resources and ecosystem services, ensuring the compatibility and sustainability of the various uses and activities developed therein, taking into account the inter and intra-generational responsibility in the use of the national maritime space and aiming at job creation.
3. Ensure the preservation, protection and recovery of natural values, biodiversity and coastal and marine ecosystems and the maintenance of the good environmental status of the marine environment, as well as the prevention of risks and the minimization of the effects resulting from natural disasters and climate change or of human action.
4. To guarantee legal security and transparency in the procedures for granting titles for the private use of maritime space, and to allow the exercise of information and participation rights.

5. Ensure the quality of information available on the national maritime space.

- Mozambique was in process of the selection of the company that will carry out the MSP (whose first phase will consist in the mapping of activities in the marine domain) (*Need to follow up with TWG representatives*)

The Consultative Committee was created to support, supervise and evaluate the process of preparing the Situation Plan (foreseen at RJUEM), composed of representatives of various sectoral Ministry's:

3.3.7 Seychelles

The Seychelles MSP Initiative, which constitutes the most advanced MSP process in the region, will initiate the implementation phase at the beginning of 2021 (See <https://seymsp.com/> for more details).

3.3.8 Somalia

No formal MSP process has yet begun.

3.3.9 South Africa

Marine Spatial Planning Act

Published on the 06 May 2019 as MSP Act No. 16 of 2018

The Marine Spatial Planning Act 16 of 2018 intends:

- a) to provide a framework for marine spatial planning in South Africa;
- b) to provide for the development of marine spatial plans;
- c) to provide for institutional arrangements for the implementation of marine spatial plans and governance of the use of the ocean by multiple sectors; and
- d) to provide for matters connected therewith.

Marine Spatial Planning Act 16 of 2018 has as yet not been gazetted. The development of the act is seen as supporting the oceans economy component of Operation Phakisa and detail

institutional arrangements for the implementation of MSP. See further details in the Appendix (section **Error! Reference source not found.**) regarding the aim and plans to develop MSP activities in South Africa.

South Africa began marine spatial planning in 2015. A “National Framework for Marine Spatial Planning” was drafted in August 2016 for public comment. A national bill was then drafted that would authorise MSP, approved by Cabinet in 2017, and sent to Parliament.

- The Marine Spatial Planning National Framework was published on the 27 May 2017 for implementation.
- The National Framework for MSP in South Africa was developed with a notion of creating a shared vision within the marine environment for Marine Spatial Planning. The vision which was agreed to is “A productive, healthy and safe ocean that is accessible, understood, equitably governed and sustainably developed and managed for the benefit of all.”
- The vision for Marine Spatial Planning in South Africa is supported by a number of principles that set out the key characteristics of Marine Spatial Planning in South Africa.
- The vision is shared by all organs of state responsible for regulating human use in South Africa’s ocean space.
- The vision balances economic, social and ecological aspirations for South Africa’s ocean space.

The MSP timeline including The launch of Operation Phakisa on Ocean Economy in 2014, the Benguela Current Commission (BCC) Marine Spatial Management and Government Project (MARISAM) in 2015, establishment of the BCC regional working group on MSP in 2015, establishment of the MSP national working group in 2015 to align the MARISMA project to the Operation Phakisa initiative, organizing a training and capacity building workshop on MSP for the MSP National working group in 2015, commissioning of a socio-economic impact assessment for MSP in 2016, drafting and gazetting the MSP bill and holding of a stakeholders’ summit in 2016, gazetting of the framework for MSP, introduction of the MSP bill to parliament and public hearing in 2017, drafting of the national data report-knowledge baseline and development and testing of the MSP interactive viewer on the oceans and costs information Management System (OCIMS) in 2018, passing on the MSP bill by National Assembly and conclusion of briefings on MSP for National Council of Provinces.

National Data and Information Report: The National data and information report is still in a draft phase as the sectors are currently contributing on it. The report will provide a status quo analyses of the different sectors data inventory in order to start looking at scenario plans and long-term implications. The aim is to develop four sub-area plans for the SA EEZ. Planning for the four regions covering entire EEZ is to be completed by 2021... (<http://msp.ioc-unesco.org/world-applications/africa/south-africa/>).

Algoa Bay Project: Towards South Africa's first Marine Spatial Plan (Dorrington, 2018). The project consists of two phases. Phase 1 aims to collect data on and model the biophysical and governance systems in Algoa Bay. Phase 2 aims to address the socio-economic system, and tie all three systems together in an overall model that can inform marine spatial planning decisions in the Bay (see <https://algoabaydata.wixsite.com/website/community-of-practice> for more details).

3.3.10 Tanzania

Projects and activities:

- Previous initiatives towards MSP: Environmentally Sensitive Area maps which were developed during the implementation of the GEF supported Western Indian Ocean Marine Highway Development Coastal and Marine Contamination Prevention Project in 2011. The focal institutions for the project were NEMC and the Surface and Marine Transport Regulatory Authority (SUMATRA). The maps were developed as annexes to the National Oil Spill Response Contingency Plan for oil spill pollution prevention.
- The maps developed which included base maps, logistics and operation resources maps, shoreline sensitivity maps, biological resources maps and human resource use maps. 3 types of environmental sensitivity maps (tactical maps, strategic maps and operational maps) were developed
- The current initiatives toward MSP process: (i) under the support of the Oil for Development Programme which aims to update existing spatial data and environmentally sensitive area maps, atlas maps of Tanzania coastal resources (onshore, offshore and terrestrial maps, and to provide online dissemination of geospatial data and environmentally sensitive area maps through the Geonode Platform, (ii) coastal marine dataset study conducted by COWI for all government and private institutions, (iii) collection of some datasets to update previous work

on environmentally sensitive area maps, (iv) documentation of geospatial data and creation of metadata, (v) storage of documented datasets into a network attached storage, and (vi) development of the Geonode platform.

- Opportunities to support the process include generation of marine resources geospatial information to help in management and planning of coastal and marine resources, protection of marine resources especially during oil spill pollution and help to answer the question of what type of resources are available and where. The data could also be used for zoning mariculture and aquaculture areas.

4 Gaps and priorities

While there has been large progress towards policy development and institutional structures available for MSP in the WIO, it appears that the countries of the WIO are still very much in different stages of MSP uptake and policy and legislative development. There is a need for institutional reform and policy amendment or development, particularly through the harmonisation of current frameworks and legislation among sectors and among WIO countries. Generally, national policies are not specific to MSP, but are broadly related to environmental policies or they are sector-specific, but they tend to be incorporating blue growth/development of the blue economy within latest updates to these. Updated information on policy/legislation/governance structures relevant to MSP in the WIO was collated from MSP workshops and engagement with the TWG and stakeholders (preliminary findings provided in section 3.3). Information gathered so far has been synthesised to identify gaps and challenges for MSP in the WIO.

Aside from Seychelles, which is the most developed country regarding MSP activities and policy development, and South Africa which passed the MSP bill and are implementing MSP at a local scale, recent policy amendments and MSP developments are prominent in Kenya, Mozambique, Mauritius and Tanzania. Most of the initial progress appears to be in coordinating government institutions and departments, establishing specific working groups, committees or offices related to the Blue Economy or MSP. Kenya, South Africa and Mauritius have (or are in the process) developed roadmaps which include detailed objectives for MSP implementation at a national level. Whilst many of these activities are limited to policies/agreements and institutional structures, there has also been encouraging progress of implementation at a local scale through data collection and online portal development (Mauritius, Madagascar and Tanzania) and case studies of MSP within countries, for example the

Algoa Bay MSP in South Africa and the county-level (Lamu) spatial plans in Kenya. Projects linked to the TNC and other donor organisations are also assisting with developing MSP projects, at a local scale, in Kenya, Tanzania and Mauritius. Despite this promising progress, there are still gaps where countries like Comoros and Somalia appear to be lagging.

Based on the information and data gathered so far, a state of MSP “readiness” has been identified for each of the WIO member states, based on a set of seven indicators (see Figure 21 below). MSP “readiness” considered the overall economic status of the country (based on various global, regional and national indicators, as seen in section 2.1.1), the environmental status, the extent of marine ecosystem protection, extent/intensity of resource depletion, efficiency/effectiveness of the governance structures in place, the level of involvement in regional projects related to MSP (e.g. and extent of MSP activities conducted in the respective country (i.e. MSP workshops or capacity building)).

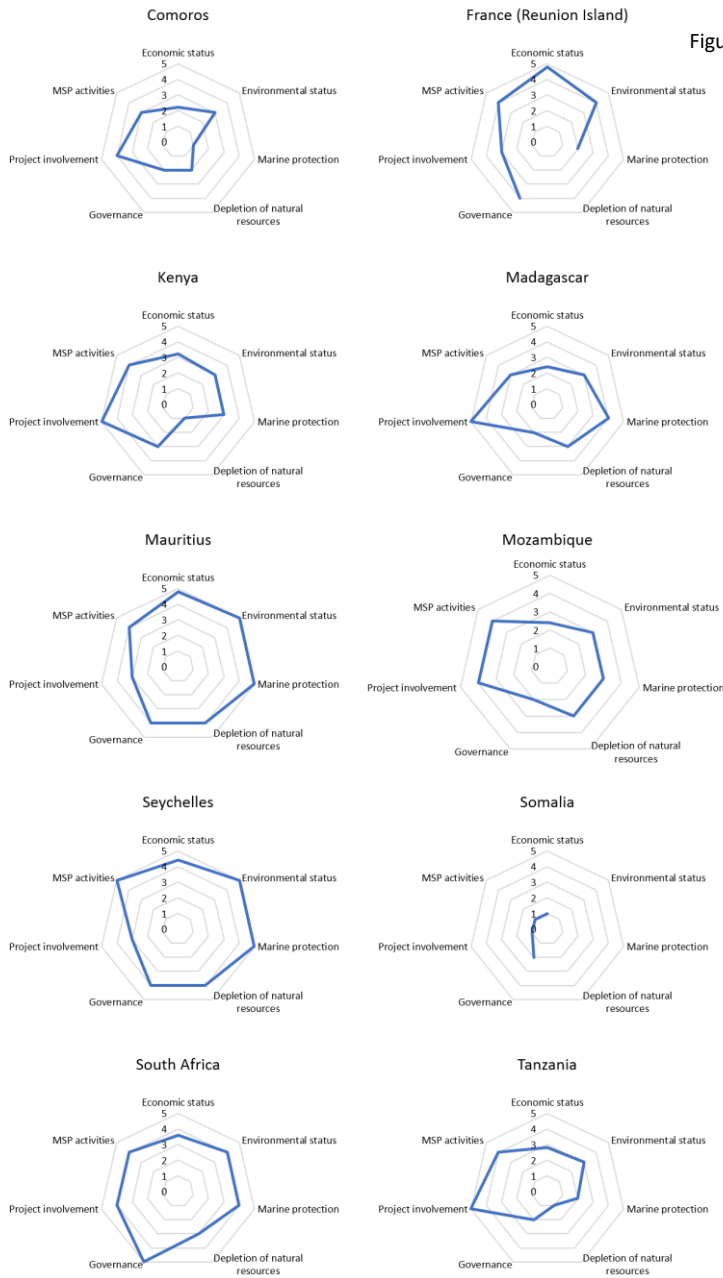


Figure 21: National MSP "readiness" in the Western Indian Ocean. Indicators of MSP "readiness" indicators (see text) were ranked from 0 (poor status) to 5 (Good status), based on information and data collated from available literature, the MSP TWG and stakeholder engagement.

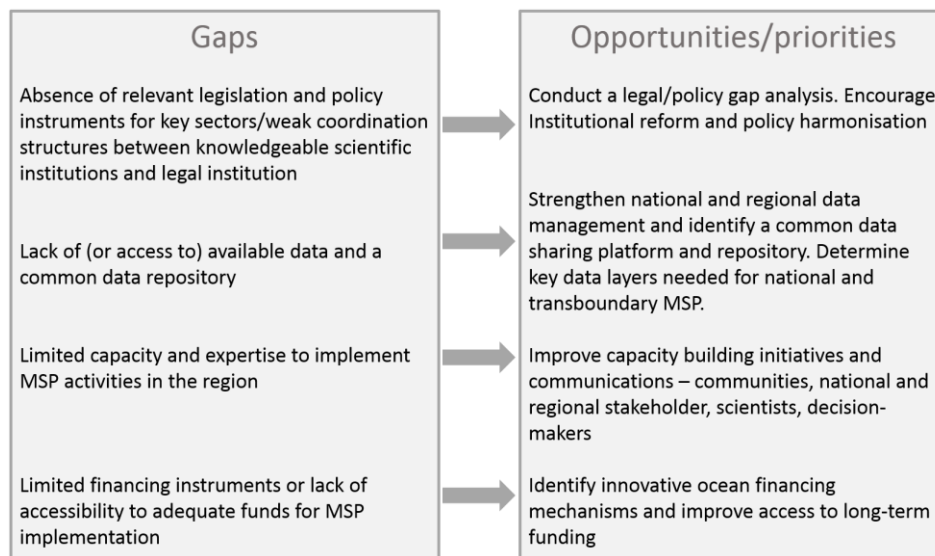


Figure 22: Some examples of the main gaps and opportunities related to MSP in the Western Indian Ocean.

Despite the progress observed in the WIO, there is an urgent need for improved capacity for MSP implementation in the region, but also for policy and legislation development related to national and regional MSP. Some capacity needs identified included knowledge/training on MSP implementation, data collection, innovative tools for MSP activities, frameworks for stakeholder engagement and conflict resolution, integration of different (existing) tools, frameworks and strategies (e.g. ICZM, EIA, MPAs & VMEs) and availability of funds. Access to long-term funding through the identification of innovative financing mechanisms is imperative for effective and sustainable MSP in the WIO.

Regarding data availability and the need for new data, it is recommended that additional (or new) key (environmental/ocean) issues are identified for the WIO, building on the work conducted for the TDA, and consulting recent published literature. Key data layers for MSP implementation in the WIO should be identified, building on the data audit that will be completed as part of the WioSym project. A detailed stakeholder mapping exercise has been started, with a snowball effect (see section 2.6 for details),

particularly related to MSP activities in the WIO, and should be continued throughout the process of the strategy development and on-going MSP activities. It is recommended that a stakeholder engagement framework be developed for the region. The MSP TWG will have to play a pivotal role in communicating with national stakeholders and coordinating activities not only in their respective countries but also within the region. It will be important, as MSP initiatives continue, to share experiences (and data), to learn from other MSP initiatives and to engage with transboundary area management. The Nairobi Convention will also be vital in facilitating these processes and providing support for regional collaboration.

5 Summary and next steps for a regional MSP strategy

A regional MSP strategy has been co-developed by Nelson Mandela University and the WIO Technical Working Group on MSP (established under the NC), with inputs from interested stakeholders across the region. The draft strategy was presented at a multi-sector NC Science-to-Policy workshop to validate and adopt the MSP strategy. A final draft strategy document and policy brief will be presented by the NCS for potential adoption by the 10th Nairobi Convention COP scheduled for November 2021.

The draft strategy will contribute to integrated ocean management in the region by adopting a systems approach that is more equipped to deal with broad-scale, cross cutting themes in the region that cannot be addressed by individual countries or sectoral approaches alone (for example, climate change, food security, IUU fishing and cross-boundary conservation areas).

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7 Appendix

7.1 Interactions between the Sustainable Development Goals (SDGs)

The United Nations Sustainable Development Goals (SDGs) were adopted by the UN General Assembly in 2015 as a crucial part of the UN's '2030 Agenda on Sustainable Development'. This agenda was envisioned to provide "a coherent way of thinking about how issues as diverse as poverty, education and climate change fit together; it entwines economic, social and environmental targets in 17 SDGs as an 'indivisible whole'" (Nilsson et al, 2016: 320) – see Figure 23

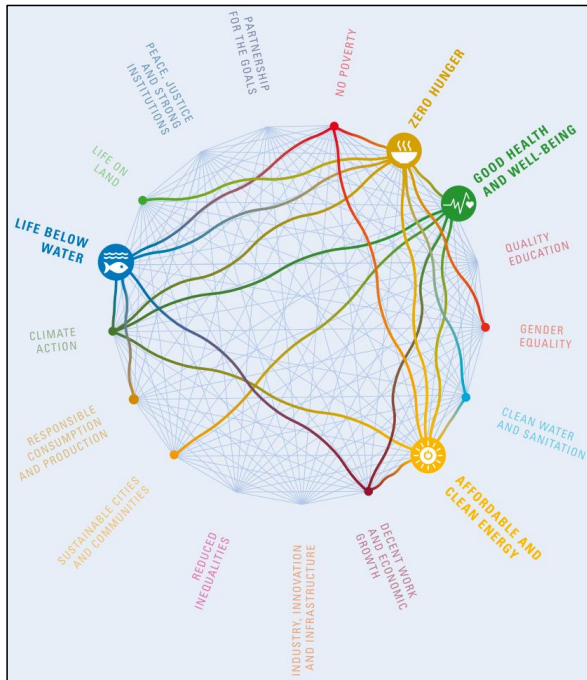


Figure 23: SDG interactions, focusing on the interactions between SDG.14 ('life below water'), SDG.2 ('zero hunger') and SDG.3 ('good health and well-being'). Reproduced from International Council for Science (2017: 6).

While the ambition of the SDGs was that they would work in a holistic, integrated way, the reality is that the SDG goals (and their associated targets) are usually kept independent and distinct from one another in their reporting and tracking, allowing for a reversion to silos and sectors. In recognition of this challenge, various protocols for assessing and monitoring the interactions between the SDGs have

been proposed and piloted. The framework employed here is that of Nilsson et al's, which is summarised in Nilsson et al. (2016) and detailed and illustrated in International Council for Science (2017). This framework proposed a scoring system, which is summarised in Table A1 and applied in Table 10.

Table A1: Scoring system proposed by Nilsson et al. (2016), in which the interactions between the SDGs are scored on a seven-point scale, ranging from +3 to -3.

GOALS SCORING			
The influence of one Sustainable Development Goal or target on another can be summarized with this simple scale.			
Interaction	Name	Explanation	Example
+3	Indivisible	Inextricably linked to the achievement of another goal.	Ending all forms of discrimination against women and girls is indivisible from ensuring women's full and effective participation and equal opportunities for leadership.
+2	Reinforcing	Aids the achievement of another goal.	Providing access to electricity reinforces water-pumping and irrigation systems. Strengthening the capacity to adapt to climate-related hazards reduces losses caused by disasters.
+1	Enabling	Creates conditions that further another goal.	Providing electricity access in rural homes enables education, because it makes it possible to do homework at night with electric lighting.
0	Consistent	No significant positive or negative interactions.	Ensuring education for all does not interact significantly with infrastructure development or conservation of ocean ecosystems.
-1	Constraining	Limits options on another goal.	Improved water efficiency can constrain agricultural irrigation. Reducing climate change can constrain the options for energy access.
-2	Counteracting	Clashes with another goal.	Boosting consumption for growth can counteract waste reduction and climate mitigation.
-3	Cancelling	Makes it impossible to reach another goal.	Fully ensuring public transparency and democratic accountability cannot be combined with national-security goals. Full protection of natural reserves excludes public access for recreation.

Table 10: Summary of key interactions between select targets of SDG.14 (sustainable oceans) and SDG.1 (no poverty). The interactions are scored against the scale developed and posited by Nilsson et al, shown in Table A1. Adapted from International Council for Science (2017: 184) p.184; details of SDG.14 and SDG.1 targets are reproduced from the SDG Wikipedia page: https://en.wikipedia.org/wiki/List_of_Sustainable_Development_Goal_targets_and_indicators

Targets	Key interactions	Score	Policy Options
14.2 → 1.1, 1.2	Healthy and productive oceans benefit small-scale fishers, improve tourism revenue and increase potential for blue carbon markets	+2	Raise awareness around the importance of healthy oceans to local communities, and sustainable use of coastal and marine resources for their livelihoods and sustained income
14.4 → 1.1, 1.2	Sustainable fisheries stabilise income and create opportunities for value-addition	+2	Invest proceeds from fishing in produced capital (e.g. fishing and transport vessels and ports) and human and institutional capacities
14.5 → 1.1, 1.2	MPAs restrict access and can create competition for scarce resources and so constrain poverty reduction efforts	-1	
14.7 → 1.1, 1.2	Sustainable tourism, fisheries, coastal agriculture, mining, and mariculture can create jobs and reduce income poverty	+3	Establish the social, economic and environmental baselines for blue growth and develop roadmaps for key sectors with trackable milestones backed with environmental goals.
14.7 → 1.1, 1.2	Increased economic activity creates more pressure on coastal and marine resources and more environmental harm	-1	Designate marine spaces for different social, economic and environmental uses and objectives and identify the trade-offs between competing uses
14.7 → 1.3	Creating jobs in sustainable tourism, fisheries, coastal agriculture, mining, and mariculture can enable social protection programmes	+2	Develop social protection policies and invest proceeds from blue growth in social protection programmes for the poor and most vulnerable (e.g. old-age pensions, health and unemployment insurance)
SDG 14 targets (details)			
14.2	By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans		
14.4	By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics		
14.5	By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information		
14.7	By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism		
SDG 1 targets (details)			
1.1	By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day		
1.2	By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions		
1.3	Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable		

The text box below provides an illustrative example of interactions between SDG.14 and SDG.1, applied to the WIO and drawn from the International Council for Science (2017) report (note that this will be edited and possibly expanded upon in the Second Draft of this report).

The Western Indian Ocean region has a combined coastline exceeding 15,000km (including island states) and a total continental shelf area of about 450,000 km² (UNEP / Nairobi Convention Secretariat, 2009). Except for the Seychelles, Mauritius and South Africa, over 50% of coastal populations have low Human Development Index (HDI) values and live below the poverty line (Gössling, 2006; UNDP, 2006). Ensuring that the regions' critical habitats (coastal lowland forests, mangroves, seagrass beds and coral reefs) are protected, restored and managed (SDGs 14.1, 14.2, 14.5) is crucial to reducing poverty and increasing income for the 65 million people that live within 10 km of the coast (Burke et al., 2011).

Sustainable fisheries (SDG 14.4) are crucial for sustainable economic development of the countries that together generate about 4.8% of the global fish catch; equivalent to about 4.5 million tonnes of fish per year (FAO, 2009). Failure to address IUU fishing for example, which is common in artisanal (nearshore) and industrial (further offshore) fisheries (UNEP / Nairobi Convention Secretariat and WIOMSA, 2015) is expected to cost the South-West Indian Ocean region around US \$400 million per year (Harris and Gove, 2005). An estimated US \$25 billion per year is derived from the coastal and marine resources in this region (UNEP / Nairobi Convention Secretariat, 2009), mainly from tourism, fisheries, coastal agriculture, mining, mariculture, and ports and coastal transport. There is enormous potential to grow these sectors and to create jobs, including within associated non-marine sectors (SDG 14.7), with the value of Western Indian Ocean assets estimated at US \$333.8billion (Obura et al., 2017).

For example, tourism – the largest contributor to GDP at over US \$11 billion per year, equivalent to 40% of the total from marine and coastal resources (UNEP / Nairobi Convention Secretariat and WIOMSA, 2015) – can create jobs in hotels, restaurants, housing and residential activities, agriculture and fisheries and so provide quick revenue to alleviate poverty (SDGs 1.1, 1.2). Investment in infrastructure such as road networks, airport facilities, amenities in the coastal and beach zones, and ports for cruise tourism can also provide high revenue for the economy and so benefit poor populations (SDGs 1.1, 1.2).

Marine extractive industries are expanding, with Kenya, Tanzania and Mozambique beginning to explore for offshore oil and gas which could provide economic benefits from income and saving on fuel imports that could be directed to poverty reduction programmes. Investing the proceeds from these non-renewable resources into long-term sustainable economic opportunities for poor populations, creating sovereign wealth funds, and building human and institutional capacities will reduce long-term poverty (SDG 1.2).

There are currently 83 MPAs in the region. Enhanced conservation measures in existing MPAs, and the creation of new MPAs (SDG 14.5) can encourage fee increases in marine parks and reserves and for licences (where they exist)

7.2 Relevant projects and initiatives that support MSP

Table A3: Description of projects and initiatives in WIO region that could support the development of a regional MSP strategy for the Western Indian Ocean. Project description sources: UNEP, GEF, project documents & project webpages (online).

Project name	Brief description/objective
Wio-LaB (2004-2010)	Coordinated a region-wide assessment of transboundary problems and issues affecting the marine environment in the WIO region. The outputs of these assessments led to the formulation of a comprehensive Transboundary Diagnostic Analysis (TDA), detailing key problems and causes of degradation of the coastal and marine environment in the WIO region, with a special emphasis on land-based sources and activities (LBSA). The TDA, completed in late 2008, provided the basis for the formulation of the Strategic Action Programme (SAP) for addressing the challenges faced by governments in the region in dealing with increasing pollution of coastal waters, the destruction and degradation of critical habitats, changes in freshwater flow (both riverine and groundwater) and sediments loads, as well as challenges resulting from global climate change.
WIOMER (2010)	<p>Marine prioritization process leading to the Regional Strategy for conserving marine ecosystems and fisheries in WIOMER. Regional initiatives to immediately address seven critical regional issues.</p> <ul style="list-style-type: none"> · 51 Priority Seascapes & Sites of Special Significance identified. · Publication and dissemination of marine biodiversity and fisheries analyses and data prepared by the Indian Ocean Commission (IOC) for the WIOMER Regional Strategy. · A Western Indian Ocean Marine Ecoregion (WIOMER) Regional Strategy Secretariat, hosted by IOC or an elected partner institution, to coordinate the regional initiatives and management of the regional strategy. · Developing a Regional Strategy Committee and five National Strategy Committees, including Terms of Reference for their roles and operational guidelines. Identifying Focal Institutions within each country and for each regional initiative for coordination among nations and relevant stakeholders. · A communications and fundraising program for the WIOMER Regional Strategy. · Protocols and tools to share data and information and disseminate reports and finding among all stakeholders.
The ISLANDS project of the COI (2011-2013)	The EU/IOC ISLANDS Project supported Marine Spatial Planning training as part of a five-day training course on Natural Resources Management, in Zanzibar in September 2015

The International Coastal Atlas Network (2005)	A training series for MPA Practitioners was supported by NOAA, USAID and WIOMSA between 2013 and 2015. In November 2015, WIOMSA supported the 3rd training session for WIO MPA Practitioners together with NOAA. This training activity was aimed at improving the capacity of MPA practitioners to utilize a variety of tools to assist with their management activities in the face of climate change. One such tool was the use of simple MSP approaches.
USAID	The International Coastal Atlas Network supported an International Marine Spatial Planning Training Course in April 2015 in Cape Town, South Africa
ASCLME (2008/2013)	The UNDP/GEF Agulhas and Somali Current Large Marine Ecosystems Project (ASCLME) is active across most of the western Indian Ocean, including the countries of Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa and Tanzania. In an innovative development, the Project has built national capacity and knowledge through the cooperative compilation of Marine Ecosystem Diagnostic Analyses (MEDAs) by national experts in each of the countries. This comprehensive documentation will pave the way for the compilation of a scientific analysis of the challenges facing the region as a whole; the Transboundary Diagnostic Analysis (TDA). The TDA will include a Causal Chain Analysis which determines the root causes of the problems identified therein. The TDA will in turn inform the Strategic Action Programme (SAP), which sets out a long-term commitment to sustainable management mechanisms through the LME Approach.
SWIOFP (2007-2013)	The Project Development and Global Environmental Objective are to improve the management effectiveness of selected priority fisheries at regional, national and community levels. Enhanced regional collaboration for sustainable fisheries development and combatting IUU Fishing. Note additional follow-up projects.
WIOSAP (2016-present)	Implementation of the Strategic Action Programme for the protection of the Western Indian Ocean from land-based sources and activities (WIO-SAP). The WIOSAP project is largely based on the WIO-LaB Strategic Action Programme (SAP) for the protection of the WIO Region from land-based sources and activities that was developed as part of the UNEP-GEF WIO-LaB Project that was implemented in the WIO Region in the period 2004 - 2010. The WIOSAP project is thus a response to a request made by the Contracting Parties to the Nairobi Convention and it presents an opportunity to the governments in the region and their conservation partners to jointly implement strategies of protecting the coastal and marine ecosystems from land-based sources and activities to provide essential goods and services on sustainable basis. The project will build on the national and regional conservation initiatives being undertaken by all participating countries governments and conservation organisations involved in the project at the local, national and regional levels. The project addresses main threats to the critical coastal and marine ecosystems of the WIO Region as identified in the TDA developed under the concluded WIO-LaB Project.

SAPPHIRE
(2016-
present)

SAPPHIRE project builds on the previous work completed under the UNDP supported GEF financed Agulhas and Somali Current Large Marine Ecosystems (ASCLME) project in close collaboration with different partners. The Transboundary Diagnostic Analysis (TDA) undertaken by the countries of the western Indian Ocean region with the joint support of ASCLME and SWIOF Projects provided a scientific and technical synthesis report on the status of the Agulhas and Somali Current Large Marine Ecosystems. The synthesis presented in the TDA was used to develop a Strategic Action Programme (SAP) to address the problems of greatest concern that are facing the marine and coastal ecosystems of the WIO region. In line with the SAPPHIRE project is designed to implement the priority set in WIO LMEs SAP. SAPPHIRE project aims to support and assist the appropriate and formally mandated government institutions and intergovernmental bodies in the region to implement related activities in order to deliver the SAP and to ensure sustainability of efforts and actions toward long-term management of WIO LMEs as well as the sustainability of associated institutional arrangements and partnerships. The project will benefit Governments of Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa and Tanzania. The overall Objectives of the Project is to achieve effective long-term ecosystem management in the Western Indian Ocean LMEs in line with the Strategic Action Programme as endorsed by the participating countries. It has five integrated components and each of them are intended to achieve various outcomes.

MOZALINK (2014-2017)	<p>Linking marine science, traditional knowledge and cultural perceptions of the sea in the Mozambique Channel to build tomorrow's marine management using spatial simulation tools and educational game. The overall goal of the MOZALINK project was to describe the natural and cultural heritage related to the coast and the sea in the Mozambique Channel, to compare traditional and scientific knowledge, to help the people and countries bordering the channel to build a governance regime that reflects their values. Therefore, the MOZALINK project aimed to contribute to strengthen interactions between research institutions and management authorities. Throughout the development of the spatial planning simulation tool, MOZALINK also aimed to contribute to "establish a common regional platform by 2017 to advance and apply science for the sustainable development of marine and coastal environments, bringing together governments, institutions, the private sector and community stakeholders for joint actions". More precisely, the MOZALINK aimed to address the following Priority Thematic Research Areas of WIOMSA. Vulnerability, Resilience & Adaptation: We followed a trans-disciplinary approach to better understand the future state of social-ecological systems. This was achieved through the implementation of a spatial simulation model enabling to explore social-ecological resilience, and adaptive capacity to future change under different climate/impact mitigation scenarios. Coastal Livelihoods: Through the study of interactions between local and regional management structure and socio-ecosystems, we highlighted the need for new management mechanisms, and the existence of key opportunities for the region. This contributed to develop strategies to improve local use of coastal and marine resources and to identify alternative livelihoods include the empowerment of local actors, especially women, who often have the least opportunities, enhancement of locally existing natural resource management systems, adoption of alternative/additional income generating activities, and increased environmental awareness. Governance for the Future: A strong emphasis was made in the project on political sciences and anthropology to study the process of informed decision making that enables trade-offs between competing users of a given resource so as to balance protection with beneficial use in such a way as to mitigate conflict, enhance equity, ensure sustainability and hold officials accountable.</p>
WIO-Benth (2019-2022)	<p>To develop a coarse-scale seabed classification scheme for the continental shelf and upper slope habitats in the WIO To characterize and determine the spatial extent of benthic communities of the continental shelf and upper slope in the western part of the WIO To create the first benthic biotope descriptions for the continental shelf and upper slope of the western part of the WIO using seabed habitat types and benthic communities To identify the location and determine the extent of potentially vulnerable offshore marine habitats in the western part of the WIO.</p>
WIOMSA Enhancing	<p>A drive, including a range of initiatives and activities (i.e. workshops and other capacity building), to enhance science to policy uptake in the WIO region. Aim to provide guidelines on effective science-to-policy interaction. commissioned by</p>

science to policy	<p>the Western Indian Ocean Marine Science Association (WIOMSA) as part of the MeerWissen: African-German Partners for Ocean Knowledge programme – a programme funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented with support from GIZ. The researchers involved in MeerWissen projects are the initial intended audience, but it is hoped that the report will be of use to other researchers and policy stakeholders in the Western Indian Ocean region and potentially in other regions too. Regional engagement and activities – Effective Science-to-Policy communication is imperative for MSP.</p>
ICZM	<p>Development of an Integrated Coastal Zone Management (ICZM) protocol for the WIO region. A collaborative regional initiative that has been on-going for many years, but forms the foundation to integrated and transboundary policy development and governance in the region. It is suggested that regional MSP policies, legislation and governance frameworks should either be integrated with or align very closely with the ICZM protocol. Latest development: On 27 March 2019, Contracting Parties to the Nairobi Convention agreed on the final language for the ICZM Protocol. States had started discussing the protocol in 2012, and the meeting in Dar es Salaam marked the fourth round of negotiations on the text.</p> <p>Some objectives of ICZM include promoting the sustainable use of resources; conserving the integrity and value of ecosystems, and preventing and mitigating the effects of natural and human threats to coastal and marine environments. The protocol provides a framework to promote regional and national ICZM and enhance cooperation for sustainable development in the Western Indian Ocean (WIO) region.</p> <p>The protocol will now move to the Convention’s Conference of Plenipotentiaries for formal adoption.</p>
ABNJ Deep (2018-present)	<p>The ‘ABNJ Deep Seas Project’ (full title: Sustainable fisheries management and biodiversity conservation of deep-sea living marine resources and ecosystems in areas beyond national jurisdiction) works towards the sustainable use and efficient conservation of deep-sea biodiversity. A joint project from the United Nations Food and Agriculture Organization (FAO) and United Nations Environment Programme (UNEP), it works with regional fisheries bodies, other multi-sectoral organizations, the fishing industry and governments.</p>

<p>NoCaMo project (2019-2022)</p>	<p>Integrated Management of the Marine and Coastal Resources of the Northern Mozambique Channel (NoCaMo) Project. The NoCaMo project, funded by the Fonds Français pour L'Environnement Mondial (FFEM), aims to ensure that the high biodiversity value of the Northern Mozambique Channel's (NMC) coral reefs, seagrass, and mangrove ecosystems are maintained by 2025. Four organizations—the Nairobi Convention, World Conservation Society, CORDIO, and World Wildlife Fund-Madagascar are responsible for achieving the project's outcomes. The project has four components:</p> <p>COMPONENT 1: Laying the institutional and knowledge foundations for the application of multi-stakeholder based marine spatial planning (MSP) across the NMC region. In addition to coordinating the project as a whole, the Nairobi Convention is responsible for executing this component.</p> <p>COMPONENT 2: Planning and adoption of environmental and social best practices in the oil and gas sector to mitigate the impacts on biodiversity and ecosystem services in the NMC</p> <p>COMPONENT 3: Replication and up-scaling of successful models for community-based resource management and improved livelihoods and welfare</p> <p>COMPONENT 4: Coordination, management and evaluation</p>
<p>Transboundary conservation area between Kenya and Tanzania (2019-2022)</p>	<p>A process initiated several years ago to investigate the options for developing a coastal and marine Trans-Boundary Conservation Area (TBCA) between the Republic of Kenya and the United Republic of Tanzania. The geographic location of the area of interest in eastern Africa. The two main agencies promoting this initiative are the Kenya Wildlife Service (KWS) and the Tanzania Marine Parks and Reserves Unit (MPRU). These protected area management agencies are tasked by national governments with promoting economic development by safeguarding and enhancing environmental services provided by Protected Areas, including tourism development, marine areas, watershed management, biodiversity conservation and other ecosystem services. Where protected areas lie on either side of an international frontier, different policies and legislation, planning and management structures, as well as the movement of wildlife, fishers, pastoralists, water, fire, and tourism across frontiers, challenges these national authorities to coordinate their planning and activities in order to achieve their intended objectives. The lack of such coordination can result in serious setbacks to national conservation and development strategies.</p>
<p>Blue Solutions</p>	<p>The Blue Solutions Initiative is a global project for knowledge exchange and capacity development supporting the management and conservation of marine and coastal biodiversity. It is jointly implemented by GIZ, GRID-Arendal, IUCN and UNEP, funded by BMUB. Knowledge and data sharing, regional and global examples.</p>

<p>WioSym project (2020-2022)</p>	<p>WIO Symphony is a collaboration between the Nairobi Convention and the Swedish Agency for Marine and Water Management (SwAM), to co-develop and implement a tool for measuring cumulative environmental impact in the Western Indian Ocean. The SwAM of Sweden is working in collaboration with Nairobi Convention to compile pressure and ecological data from the region under the WioSym Project. The work will involve carrying out an analysis to look at the contribution of different sectors to the MSP process in terms of impact that is cumulative impact of the different sectors and how they can inform holistic spatial planning. WIO Symphony is also part of a bilateral collaboration with South Africa and other countries of the region that are not classed as LDCs and SIDS - Kenya, Mauritius, Seychelles and France through La Réunion. See more details at https://www.havochvatten.se/en/eu-and-international/international-cooperation/swam-ocean/wio-symphony---assess-the-impacts-of-your-planning-decision.html</p>
<p>SOLSTICE (2017-2021)</p>	<p>SOLSTICE-WIO is a four-year collaborative project funded by the UK Global Challenges Research Fund (GCRF). Launched in October 2017, it brings together recent advances in marine technologies, local knowledge and research expertise to address challenges facing the Western Indian Ocean region in a cost-effective way via state-of-the-art technology transfer, collaborative environmental and socio-economic research and hands-on training. Three case study sites are generating new information that may inform MSP processes:</p> <ul style="list-style-type: none"> • Kenya: new frontiers for food security and economic growth (North Kenya Bank) • Tanzania: living marine resources and impacts of climate change (Pemba Channel) • South Africa: ecosystem shifts and stability of fisheries (South Coast)
<p>Cities and Coasts (WIOMSA) (2018-2021)</p>	<p>WIOMSA, with funding from the Government of Sweden, is implementing a four-year Cities and Coasts (C&C) Project (2018-2021), whose main objectives are to:</p> <p>Improve scientific knowledge and to stimulate research directed at underpinning effective and efficient responses by coastal cities to current and foreseeable challenges they face. Support will be given only to high quality, demand-driven, and policy-relevant action research;</p> <p>Support and facilitate capacity building in City planning with a focus on coastal cities and the transfer of knowledge and expertise to harness the potential of these cities;</p> <p>The mobilising of planners to collaborate with stakeholders in coastal cities such as local authorities, marine scientists, policymakers from central government, the private sector, civil society and citizens. In the co-production of the knowledge and production of decision-support tools, needed to support the transformation of coastal cities towards sustainability;</p> <p>Encourage partnerships among stakeholders from the academic, practitioner, private sector, civil society, and policy-making communities in enhancing coastal cities and facilitating the blue economy.</p>

Ocean Metiss	<p>South-Western Indian Ocean Maritime Spatial Planning (Ocean Metiss) - The Ocean Metiss project is a joint action presented by Regional Council of Réunion Island as a local government in the quality of project coordinator, and the Prefect of the Région Réunion as State Representative, jointly sharing the responsibility of territorial spatial planning, and of the definition of a sustainable strategy for the economic development in the South-Western Indian Ocean Area (SWIO). The project is also supported by the intergovernmental organisation of the Indian Ocean State Islands (Mauritius, Comoros, Madagascar and Seychelles).</p> <p>The main goal of the project is to create a complete, integrated status report on existing factors impacting the local economies and ecosystem (fish stocks, as well as other maritime resources such as renewable energies), and to evaluate the potentials offered by the large maritime zone to boost the economic development, by preserving the rich tropical biodiversity of the concerned territories.</p>
SWIOFC/NC Partnership project on linking fisheries and environment issues	<p>Objective: To promote sustainable utilization of living marine resources of the South West Indian Ocean by proper management & development of the marine living resources (Countries: Comoros, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Seychelles, Somalia, South Africa, Tanzania and Yemen)</p> <p>Within the high-level goal of the project the main focus includes the following main areas of work:</p> <ul style="list-style-type: none"> * Promote area-based management tools such as Marine Spatial Planning (MSP) for policymaking in support of ocean governance; * Promote a consistent regional high-level policy dialogue and coordination between the environmental and fisheries management institutions; * Support and promote a similar policy dialogue and coordination at the national level to achieve sustainable livelihoods for coastal communities; * Support integration of fisheries management in multi-sectoral multi-stakeholder initiatives for policy-making and integrated management; * Promote the sustainable improvement of livelihoods of small-scale coastal communities, particularly of women and youth involved in fishing and related activities, and upscale successful models for community-based resource management in the WIO region; * Promote the inclusion of vulnerable coastal communities, and particularly small-scale fishing communities, in the sectoral and inter-sectoral management processes dealing

	<p>with the coastal and marine regions; and</p> <p>* Enhance regional capacity on adaptation to environmental variability including climate change, targeting especially poor coastal communities.</p> <p>More details (http://www.fao.org/3/ca6546en/ca6546en.pdf)</p>
<p>IOC-UNESCO work on MSP</p>	<p>MSPglobal (http://www.mspglobal2030.org/) is an IOC/UNESCO Project, co-funded by the EU and several international partners, to develop international guidelines on Maritime/Marine Spatial Planning.</p> <p>Initiatives include an MSP Roadmap which defines five priority areas and respective strategic objectives for mutual cooperation: 1. Transboundary MSP; 2. Sustainable Blue Economy; 3. Ecosystem-based MSP; 4. Capacity building; 5. Building mutual understanding and communicating MSP.</p> <p>An MSP forum for discussion and exchange of experiences and use cases, and</p> <p>MSPglobal for the implementation of the Roadmap.</p>

Table 11: MSP training events (until 2018)

Title	Language	Expected Dates	Locations	Comments
Training on Marine Spatial Planning and Coastal Communities	Portuguese	5-7 February 2018	Cape Verde	Organized by the PADDLE Project (EU Funded) in collaboration with IOCAFRICA, IOC-MPR, IOC-OTGA, GRID Arendal /Mami Wata Project and the Abidjan Convention with the support of the Federal Ministry of Environment, Natural Protection, Construction and Nuclear Security of the Federal Republic of Germany.
IORA Indian Ocean Conference on "Marine Spatial Planning - Towards Sustainable Use of the Indian Ocean"	English	22-23 November 2017	Mauritius	It was proposed to host a Marine Spatial Planning Conference to provide IORA Member States with an opportunity to learn more about how to achieve their respective targets under Sustainable Development Goal 14 by using effective MSP methodology. The IORA Indian Ocean Conference on Marine Spatial Planning was jointly hosted by IORA and the Ministry of Defence and Rodrigues of the Republic of Mauritius. Participants from 15 IORA Member States, 3 Dialogue Partners and International Experts from Federation of Indian Chambers of Commerce & Industry (FICCI), Carnegie (India), The Commonwealth Scientific and Industrial Research Organisation (CSIRO), International Indian Ocean Expedition (IIOE-2 , India), Intergovernmental Oceanographic Commission (IOC-Perth), Under Water Cultural Heritage (UWCH) – Stanford University, National Marine Functional Zoning Expert Committee (NMFZEC, China) and the United Nations Environment Programme (UNEP) attended the conference to discuss existing

				MSP developments within the Indian Ocean region. This is also a platform to explore and discuss the potential of MSP for IORA Member States.
Training on Marine Spatial Planning?	English	March 2018	Namibia	GIZ? IOCAFRICA?
Training on Marine Spatial Planning	French	7-11 May 2018	Madagascar	Organized by IOCAFRICA, IOC-MPR, IOC-OTGA and the National Authorities of Madagascar
Training Marine Spatial Planning?	French	July 2018	Senegal	OTGA
Marine Spatial Planning International Forum	French / English	September / October 2018 (tbc)	Réunion, France (tbc)	Organized by IOC-MPR, IOCAFRICA and the European Commission with the support of the French Government.
Training on Marine Spatial Planning	English	10-14 September 2018	Mombasa, Kenya	Organized by IOCAFRICA, IOC-MPR, IOC-OTGA and...
Training in Marine Spatial Planning in the West Mediterranean	The idea is to do it in French, some sessions will have interpretation in Arabic and/or Spanish.	4 th quarter of 2018 (tbc)	Morocco, Algeria or Tunisia (tbc). If we organize this course with other project initiatives led by IOC-UNESCO, we could consider Senegal too in the context of the RTC in Dakar.	Organized by IOC-MPR, IOCAFRICA and the European Commission with the support of the National Authorities.

7.3 Stakeholders

Section 2.6 of this document provides a detailed description of the stakeholder engagement process.

Table A5: List of WIO Marine Spatial Planning (MSP) Technical Working Group members (as at 17 November 2020)

Country	Name and Affiliation	Contacts
Comoros	Mr. Mouchitadi Madi Bamdou Parc National de Moheli (PNM)	mouchtadimadi@yahoo.fr
	Mr. Soifa Ahamed Soilihi Manager, Cordonnateur de l'Office National de Contrôle Qualité et des Certification des Produits Halieutiques	soifaahamed@yahoo.fr
France	Mr. Fabrice Bernard Conservatoire du littoral Délégué Europe & International	F.Bernard@conservatoire-du-littoral.fr
	Mr. Pascal Talec Coordinator, Mer et Littoral deal de La Reunion	Pascal.TALEC@developpement-durable.gouv.fr
Kenya	Ms. Susan Otieno Assistant Director Fisheries, Ministry of Agriculture, Livestock, Fisheries and Irrigation State Department for Fisheries, Aquaculture and the Blue Economy	saotieno@yahoo.com
	Mr. Harrison Onganda Research Officer, Kenya Marine and Fisheries Research Institute (KMFRI)	hochieng2003@yahoo.com
Madagascar	Mr. Fanomezantsoa Randrianarison Director, coordination, planning and Valorization maritime Space Directorate	mfano@yahoo.fr
	Dr. Jaona Bemiasa Lecturer, University of Tulear, Marine Sciences and Fishery Institute, Remote Sensing, GIS and Habitat Mapping	j.bemiasa@odinafrica.net
Mauritius	Dr. Rezah Badal Directors General, Prime Minister's Office Department of Continental Shelf, Maritime Administration and Exploration.	mrbadal@govmu.org
	Dr. Arshad Rawat (<i>Alternate</i>) Director, Department for Continental Shelf and Maritime Zones Administration and Exploration, Oceanography/ Marine Geosciences Unit	arawat@govmu.org

	Mr. Rajaram Luximon Environmental Officer, Ministry of Environment, Solid Waste Management and Climate Change	rluximon@govmu.org
Mozambique	Dr. Celso Lopes (Mr) Deputy Director, DIPOL/ Ministry of Sea, Inland Waters and Fisheries (MIMAIP)	celpes@hotmail.com
	Eng. Sofia Chambe DINOTER/ Ministry of Land and Environment (MTA)	sofchambe@yahoo.co.uk
Seychelles	Mrs. Marie-May Muzungaile Director General Biodiversity Conservation and Management Division	m.mjeremiemuzungaile@env.gov.sc
	Ms. Helena Sims MSP Project Manger Seychelles Marine Spatial Plan Initiative	helena.sims@tnc.org
Somalia	Mr. Dahir Farah Hussein Director, Department of training and extension, Ministry of Fisheries and Marine Resources, Puntland, Somalia	laari99@hotmail.com
	Dr. Amina Lula Sekaly Technical Advisor/ Quality Control Specialist in Pharmaceutical and Food Safety, Ministry of Health and Human Services	asekaly@gmail.com
South Africa	Mr. Potlako Khati Control Environmental Officer: Coastal Spatial Planning, Department of Environmental Affairs	pkhati84@gmail.com
	Mr. Moses Ramakulukusha Control Environmental Officer National Department of Environmental Affairs Department of Environmental Affairs: Oceans and Coasts	MRamakulukusha@environment.gov.za
Tanzania	Dr. Saleh A.S. Yahya Lecturer, Institute of Marine Science, University of Dar es Salaam	saleh@ims.udsm.ac.tz; saleh_y@yahoo.com
	Eng. Sijali Pamba Zegge Lecturer, University of Dar es Salaam	engpambasi@yahoo.co.uk; pambasijali@udsm.ac.tz

Table A6: List of additional stakeholder organisations that responded to a call for participation (as at 17 November 2020)

Organisation
African Parks
Association d'Intervention pour le développement et l'Environnement (Comoros)
Blue Ventures (Madagascar)
Conservation International
Coastal Oceans Research and Development in the Indian Ocean (Kenya)
Cape Peninsula University of Technology (South Africa)
de la direction de pêche régionale de Mohéli (Comoros)
de la direction nationale de ressource Halieutique (Comoros)
du parc national de Shiswani (Comoros)
Environmental Affairs Officer at the United Nations Economic Commission for Africa (UNECA)
International Union for the Conservation of Nature
Marine Megafauna Foundation (Mozambique)
Nelson Mandela University (South Africa)
Oceanographic Research Institute (South Africa)
South African Institute for Aquatic Biodiversity (South Africa)
The East African Wildlife Society
United Nations Environment Programme - World Conservation Monitoring Centre
University of Reunion (France)
Wildlife Conservation Society
WildOceans
Consortium for the Conservation of the Coastal and Marine Ecosystems of the Western Indian Ocean
West Indian Ocean Governance & Exchange Network (MSP Working Group)
International Ocean Institute (South Africa)
Western Indian Ocean Marine Science Association
World Wide Fund for Nature