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Lessons Learned from the Nairobi Convention

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I. INTRODUCTION

The ocean and coastal region is abundant in transboundary resources necessary for sustainable development of countries around the world. The utilization of these resources causes impacts such as pollution, overfishing, and the destruction of habitats. These issues do not just affect a individual resource user, but the system of coastal and island communities as a whole. In light of these transboundary issues, there has been an increased call for collaboration in addressing these issues through regional management initiatives. Countries must be aware of the activities occurring within their national jurisdiction, the national jurisdiction of other adjacent countries, and within the high seas. Regional ocean governance frameworks have become the primary method of insuring the sustainable transboundary management of the marine and coastal environment.

A regional ocean governance regime defined by Wowk (2011) is a “social institution composed of geographically proximate states that maintain agreed upon (sustainable) principles, norms, rules, procedures, and programs that govern the interactions of actors in their respective ocean area.” Regional regimes take an ecosystem-based approach to management, integrating the knowledge of biological and physical systems of the ecosystem with the needs of humans. In effect, this encourages science, conservation, and location based measures to be taken within transboundary areas for the protection of the ecosystem.¹ These regimes function as a legal framework for a specific location to develop a common willingness to protect the environment.² One such regional ocean governance framework system that has evolved over the past forty years is the UNEP Regional Seas Programme.

The Convention for the Protection, Management, and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention) was adopted in 1985 as a United Nations Environmental Programme (UNEP) Regional Seas Programme. Through an Action Plan and associated Protocols on Protected Areas and Biodiversity, and Cooperation in Combating Marine Pollution in Emergency Situations in the East African Region, the Nairobi Convention aims to increase the capacity of the Western Indian Ocean nations to protect, manage, and develop the coastal and marine environment. Since coming into force in 1996, the member States of the Nairobi Convention have come together to address the current and emerging issues of the Western Indian Ocean. In 2010, in an effort to further incorporate the transboundary issues of climate change, marine and land-based pollution, integrated coastal management, and the importance of biological diversity, the member States adopted an amended text of the Nairobi Convention and a new Protocol that addresses the Management of Land-Based Sources and Activities. The “Amended” Nairobi

¹ Backer et al. (2010)

² Hayward (1984)

Convention demonstrates the renewed commitment of member States in protecting the coastal and marine environment of the Western Indian Ocean.

In addition to the Nairobi Convention, five other major regional environmental regimes are operative in the Western Indian Ocean, addressing primarily coastal and deep-sea fisheries. The Southwestern Indian Ocean Fisheries Commission (SWIOFC) is an UN Food and Agriculture Organization (FAO) regional fishery body that promotes the sustainable utilization and management of living marine resources in the region. The Southern Indian Ocean Fisheries Agreement (SIOFA) is the recently adopted regional fisheries management agreement for the Indian Ocean high seas. The Indian Ocean Tuna Commission (IOTC) is the tuna regional fisheries management organization. The Southern Indian Ocean Deep Sea Fishers Association (SIODFA) is an organization of the deep-sea fishing companies that operate in the Indian Ocean and implement voluntary benthic protected areas in the Southern Indian Ocean. The other regime is the Agulhas Somali Current Large Marine Ecosystem (ASCLME), which is a large marine ecosystems (LME) project that aims to increase the technical capacity to manage the regional marine environment.

While there are many existing environmental regimes in the Western Indian Ocean, the majority of these regimes have a specific scope of issues and countries that they address.³ As a result, the regional framework appears to have gaps in the implementation of policies related to coastal zone management, the protection of marine biodiversity, and the management land-based sources and activities. The Nairobi Convention is attempting to address all of these issues, but it is unclear as to how effective it has been in protecting the coastal and marine environment since its adoption.

The purpose of this analytical paper is to evaluate the effectiveness of the Nairobi Convention as a regime in the Western Indian Ocean to protect, conserve, and manage the marine and coastal environment. By evaluating the effectiveness of the Nairobi Convention, suggestions can be made to guide policymakers on how to strengthen the regime to further advance the positive impacts the Convention has made on the Western Indian Ocean coastal and marine environment.

II. RESEARCH APPROACH

A. The Study of Regimes and their Effectiveness

³ Rochette and Billé (2013)

Regional environmental regimes are created to address collective problems. Pentland (1981) defines regimes as “governing arrangements constructed by states to coordinate their expectations and organize aspects of international behavior in various issue-areas.” However, not all regimes are successful in solving problems due to the difficulties in establishing and maintaining cooperation.⁴ It is therefore important to understand why some regimes are successful in addressing issues while others fail. Regime effectiveness is the study of the contribution that institutions make to solve problems, which then inspire actors to commit time and energy needed to create them (institutions).⁵

Regime effectiveness can be defined in many different ways. If effectiveness were measured only by the degree of alleviation of a problem, other behavioral factors (such as the effect of the adoption and promotion of principles by the regime), positive economic impacts, and the normative effects of fairness and stewardship principles would not be taken into consideration.⁶ Young and Levy (1999) discuss the different approaches of regime effectiveness, including: *problem-solving* (solves the problem for which the regime was created) *economic* (cost-effective solutions), *normative* (fair and just), *legal* (all obligations are met), and *political* (behavior change). The absence of regional environmental agreements in the Western Indian Ocean prior to the development of the Nairobi Convention, compared to the number of agreements that presently exists raises the question of whether the introduction of the Regional Seas Programme has increased the level of collaboration within the region on environmental management.

This analysis will utilize the definition of effectiveness from a political approach, in which the behavior of actors and performance of institutions contributes to the level of effectiveness of a regime. For the scope of this research, the Nairobi Convention is considered effective when the behaviors of actors and the performance of institutions have seen a positive change towards solving the problem of protecting the Western Indian Ocean coastal and marine environment.

Regime theory can be utilized to determine a regime’s effectiveness. One method of determining effectiveness is through a three-step process of evaluating the *outputs*, *outcomes*, and *impacts* of a regime, as shown in Figure 1.⁷ Underdal (2002) states that through regime formation (outputs) and regime implementation (outcomes), environmental regimes aim to change human behavior, which results in biophysical changes (impacts). Mitchell (2007) also provides the insight into the definitions of the variables, as shown below.

⁴ Underdal (2002)

⁵ Young and Levy (1999)

⁶Wowk (2011)

⁷ These variables are part of a category that Breitmeier, Young, Zürn (2006) describe as regime consequences, that they use to measure regime effectiveness.

Outputs: laws, policies, and regulations that states adopt to implement an International Environmental Agreements and transform it from international to national law

Outcomes: changes in how governments and sub-state actors act

Impacts: changes in environmental quality

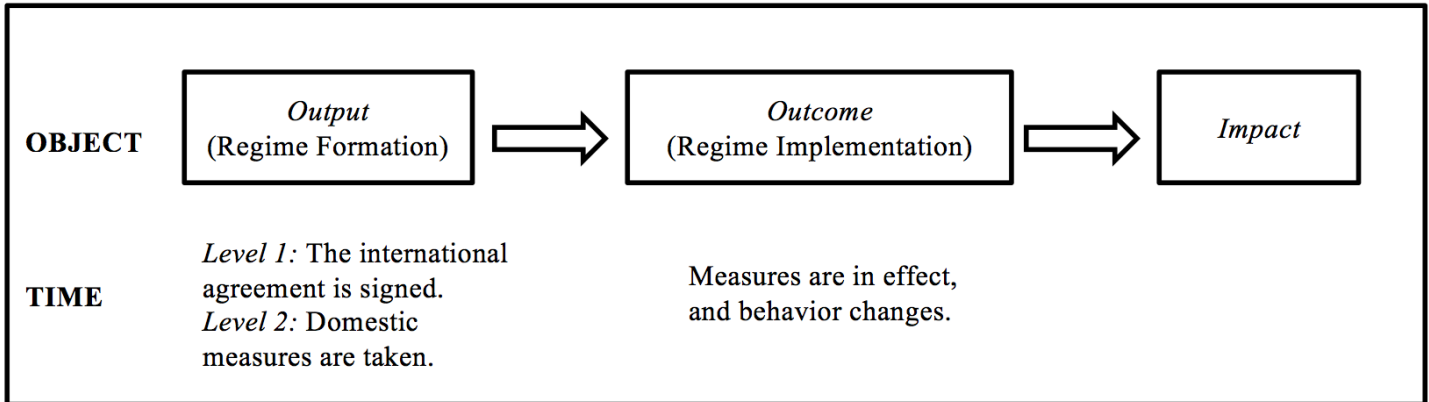


Figure 1. Objects of assessment for regime effectiveness defined by Underdal (2002)

To measure the effectiveness of regimes there must be a point of reference against which to make comparisons. The purpose of a point of reference is to measure regime effectiveness from the perspective of relative improvement caused by the regime.⁸ Relative improvement is the difference between a regime and the absence of that regime. For this analysis, the point of reference will be the absence of the Nairobi Convention in the Western Indian Ocean.

B. Applying the Theory to the Research

The first step in evaluating effectiveness is to understand the impetus behind the Nairobi Convention. The forthcoming book “Handbook of National and Regional Ocean Policies”⁹ provides a framework of guiding questions that can be asked during the analysis on the outputs, outcomes, and impacts of the Convention.

Outputs (Regime Formation)

- What are the issues that the Convention has sought to address?
- What are the stated goals of the Nairobi Convention? What are the principles and norms of the Convention?

⁸ Ibid 4, Page 8

⁹ See Cicin-Sain, Vanderzwaag, Balgos, eds. (forthcoming 2015)

- How is the Nairobi Convention organized? What are the institutional arrangements in place to implement the Convention?

Outcomes (Regime Implementation)

- What are the methods and resources in place to enforce the provisions of the Convention?
- Which goals of the Convention have been operationalized on the national, regional, and international level?
- Who are the key players in the Nairobi Convention? How have they been influencing the Convention? What are the respective technical and political capacities of each player?

Impacts (Regime Consequences)

- What are the impacts of the Nairobi Convention in how member States in the region protect, manage, and develop the marine environment in a sustainable fashion?
- Has the protection of the marine environment improved as a result of the Nairobi Convention?

Through this question framework, a list of working indicators to be evaluated can be developed. The variables analyzed in this research are presented in Table 1.

Table 1. Variables and indicators being evaluated in research

| Variable | Definition of Variable | Indicators being Evaluated |
|-----------------|--|--|
| Outputs | Laws, policies, and regulations that states adopt to implement an International Environmental Agreements and transform it from international to national law | <ul style="list-style-type: none"> • Problem identification • Goals • Principles • Norms • Extent of ratification • Institutional arrangements • Financial considerations |
| Outcomes | Changes in the behavior of governments and sub-state actors | <ul style="list-style-type: none"> • Implementing mechanisms in place and how are they working • Programs and projects in place |
| Impacts | Changes in environmental and social quality | <ul style="list-style-type: none"> • Environmental changes |

While the outputs and outcomes of the regime can be evaluated through the methods discussed in the forthcoming section, the reader should note that it is quite difficult to evaluate the direct environmental impacts of the Nairobi Convention without additional on-the-ground research. There is very little documentation available for measuring the changes in the environmental conditions in the Western Indian Ocean region directly caused by the Nairobi Convention. Therefore, without an extensive on-the-ground study, any conclusions that can be drawn about this variable, will be general observations. For the scope of this research, the measuring of environmental impacts of the Nairobi Convention will be very limited.

C. Methodology used for Research

The research on the effectiveness of the Nairobi Convention was conducted through a three-step process. The first step was a review of relevant documents, including publications on the Nairobi Convention, UNEP Regional Seas Reports, the 2000 UNEP evaluation on the Nairobi Convention, technical reports from scientific and political institutions, the Nairobi Convention website, and regional civil society websites, which represent the primary source of information. Discussions were then conducted with six key policy actors in the region to gain insight of the perceptions drawn from the document review.

To gain first-hand information on the Convention, the analysis was advanced through discussions with regional policy actors. In October 2013, the Western Indian Ocean Marine Science Association (WIOMSA) hosted the 7th Scientific Symposium in Maputo, Mozambique, with key actors and players in the Western Indian Ocean in attendance. The researcher traveled to the WIOMSA Scientific Symposium to interview key actors and to gain first-hand experience with experts and policy-makers in the region. Using the confirmed preliminary attendance list of the Scientific Symposium, a sample list of people to interview was created, including: a National Focal Point contact from a coastal State in the WIO region; an officer of the Nairobi Convention Secretariat; a technical expert of the Western Indian Ocean Marine Science Association (WIOMSA); and three members of civil society organizations active in the WIO region, including one international organization and two regionally-based organizations.

To protect the interviewees from the potentially sensitive results and discussion presented in this research paper, the identities of informants are kept confidential. The informants were informed of the confidentiality of the discussions utilized for the research, and were informed of the potential risks associated with the research. Names and any information that would give away the identity of the informant were removed from the interviews conducted and information compiled. The results of the interviews are reported through the use of direct quotes and references to the type of informant they represent.

Two sets of questions were devised from the general set of questions posed in the approach, as shown in Figures 2 and 3. Figure 2 shows the questions posed to the Secretariat and WIOMSA informants. Questions were developed to gain insight on the formation and implementation of the Nairobi Convention. Figure 3 shows the questions posed to the National Focal Point contact and civil society members. Questions focused on national and civil society involvement in Convention processes.

1. Why are oceans and coasts an important policy area in the Western Indian Ocean?
2. What were the factors that gave rise to the Nairobi Convention?
3. How are the goals of the Nairobi Convention attained?
4. What are the institutional structure, methods, and resources available to enforce the provisions of the Nairobi Convention?
5. How well does the institutional structure help the Nairobi Convention achieve its goals?
6. What have been the major results of the Nairobi Convention at the national and regional levels?
7. How well have the objectives of the 1985 Nairobi Convention been addressed? Have the amendments and new protocols added to the Convention enhanced the ability of the Convention to address the problems in the Western Indian Ocean? In what ways?
8. What indicators are used to measure the success of the Nairobi Convention?
9. In regards to the scientific research and technical development programs in the Western Indian Ocean, how has the Nairobi Convention been a factor in the advancement of these programs in the Western Indian Ocean?
10. In regards to the education, training, and awareness programs in the Western Indian Ocean, how has the Nairobi Convention been a factor in the advancement of these programs in the Western Indian Ocean?
11. What are the current and emerging issues in the Western Indian Ocean region?
12. What are the future prospects for the Nairobi Convention?
13. Do you have any suggestions for enhancement of the effectiveness of the Nairobi Convention?

Figure 2. Question set used for Secretariat and WIOMSA informants

1. Why are oceans and coasts an important policy area for the Western Indian Ocean?
2. How well does the Nairobi Convention address current and emerging issues?
3. What interaction is there between the national focal points and civil society (Non-governmental organizations, local communities, etc.)?
4. What interaction is there between the Nairobi Convention and civil society?
5. What are the major results of the Nairobi Convention?
6. In regards to scientific research and technical development programs in Western Indian Ocean, how has the Nairobi Convention been a factor in the advancement of these programs?
7. In regards to the education, training, and awareness programs in Western Indian Ocean, how has the Nairobi Convention been a factor in the advancement of these programs?
8. What are the strengths/weaknesses of the Nairobi Convention?
9. Do you have any suggestions for enhancement of the effectiveness of the Nairobi Convention?

Figure 3. Question set used for the National Focal Point contact and civil society informants

The responses from the informants and the findings from the preliminary document review are compiled into an analysis of the Nairobi Convention, divided into the three components of regime effectiveness: *outputs*, *outcomes*, and *impacts*. These three sections are utilized to inform the discussion of the lessons learned from the

Convention, including the strengths, weaknesses, and recommendations for further development and implementation of regional ocean governance in the Western Indian Ocean.

III. EVALUATION OF THE EFFECTIVENESS OF THE NAIROBI CONVENTION

A. Evolution of the Nairobi Convention: Protecting the Western Indian Ocean

| Variable | Definition of Variable | Indicators being Evaluated |
|-----------------|--|--|
| Outputs | Laws, policies, and regulations that states adopt to implement an International Environmental Agreements and transform it from international to national law | <ul style="list-style-type: none"> • Problem identification • Response to problems • Goals • Principles • Norms • Extent of ratification • Institutional arrangements • Financial considerations |

This section discusses the regime formation (outputs) of the Nairobi Convention. First the goals and principles throughout the history of the Convention are highlighted. After discussing these variables, the research will move into the institutional and financial arrangements of the Convention. At the end of the section, indicators for measuring the regime outputs will be summarized.

1. Background on the UNEP Regional Seas Programme, the Eastern Africa Seas Program, and the Nairobi Convention

The UNEP Regional Seas Programmes (RSPs) were established with the purpose of managing the causes and effects of coastal environmental damage.¹⁰ Since the inception of the program in the early 1970s, Regional Seas Programmes have worked to decrease the growing deterioration of global oceans and coasts through the transnational cooperation in sustainable management and use of the marine and coastal

¹⁰ Tolba and Rummel-Bulska 1998

environment.¹¹ There are over 143 countries participating in thirteen Regional Seas Programmes established by and under UNEP, and five partner programs.^{12,13}

The RSPs are action-oriented, typically guided by regional action plans that are developed to combine environmental assessment efforts with responsive action towards degradation at a regional scale.¹⁴ The Regional Seas Programmes are usually rooted in a legal framework consisting of a Convention and associated Protocols. Implementation of the Programmes is coordinated by a central management authority, either a Regional Coordinating Unit (RCU) or a Secretariat. The Regional Seas Programme was initially established as a framework to develop actions and measures for responding to emergencies involving marine pollution, and over time the scope of Program activities has drastically expanded as new international conventions and treaties have emerged. Thematic issues currently being addressed by the Regional Seas Programs include (but are not limited to): marine and land-based pollution, regional response to pollution emergencies, management of land-based sources and activities, protection of marine and coastal biodiversity, and integrated coastal zone management.

The establishment of the Regional Seas Programmes has served as a conduit for regional cooperation, as well as becoming a platform for the regional and national implementation of Multilateral Environmental Agreements (MEAs), including the International Maritime Organization (IMO) conventions, the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), the Basel Convention, the Stockholm Convention, the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Migratory Species (CMS), World Heritage Convention, and the Ramsar Convention.¹⁵

The Eastern Africa Regional Seas Program was established by the UNEP Governing Council Decision 8/13C on April 29, 1980, “with a view to initiating and carrying out (...) a programme for the proper management and conservation of marine and coastal resources”¹⁶ in the Eastern Africa region. UNEP, in collaboration with other UN agencies, was given the specific task of assisting the States in developing and

¹¹ UNEP (2005)

¹² Ibid 11

¹³ UNEP Regional Seas Programmes include the Black Sea, Wider Caribbean, East Asian Seas, Eastern Africa, South Asian Seas, ROMPE Sea Area, Mediterranean, North-East Pacific, Northwest Pacific, Red Sea and Gulf of Aden, South-East Pacific, Pacific, and Western Africa. Partner programs are in the Antarctic, Arctic, Baltic Sea, Caspian Sea and North East Atlantic (OSPAR).

¹⁴ Akiwumi and Melvasalo (1998)

¹⁵ Illueca (2013)

¹⁶ UNEP (1980)

executing a program for the management and conservation of the marine and coastal resources in the region.¹⁷ Between October and December 1981, UNEP led an exploratory mission to the region, focusing on specific issues in the region, such as coastal land use management, conservation of coastal and marine resources and ecosystems, industrial, marine, and hydrocarbon pollution.¹⁸

In late September 1982, experts nominated by the East African countries participated in the Workshop on the Protection and Development of the Marine and Coastal Environment of the East African Region in Mahé, Seychelles, to review and discuss the findings from the sectoral reports and overview compiled by UNEP. The workshop emphasized seven priority concerns of the region, including:¹⁹

1. The conservation of marine and coastal ecosystems and wild fauna and flora
2. Support and training for monitoring and research related to the sources, levels, and effects of pollutants
3. Contingency planning in cases of marine pollution emergencies
4. Fisheries related projects
5. Environmental Impact Assessments (EIAs)
6. Environmental education
7. Coastal erosion

With these issues in mind, the workshop developed and endorsed the first draft of the Eastern Africa Action Plan, as well as a priority program of activities within the framework of the action plan. Ten projects were also identified as priority regional projects to be initiated in 1983 (e.g., developing a network of environmental pollution laboratories, providing training facilities for environmental control technicians, development of a network of oil pollution monitoring centers, assessment of the environmental impact of economic and social developments, and development of a regional environmental education program).²⁰

The Conference of the Plenipotentiaries on the Protection, Management, and Development of the Marine and Coastal Environment of the Eastern African Region was held at UNEP Headquarters in Nairobi, Kenya, on 17-21 June 1985, with the purpose to adopt:

- The Action Plan for the Protection, Management, and Development of the Marine and Coastal Environment of the Eastern African Region²¹

¹⁷ UNEP 1985a

¹⁸ UNEP 1984

¹⁹ Ibid 16

²⁰ UNEP 2000

²¹ UNEP 1995a

- The Convention for the Protection, Management, and Development of the Marine and Coastal Environment of the Eastern African Region²² (the Nairobi Convention)
- The Protocol concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region²³
- The Protocol concerning Cooperation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region.²⁴

The Nairobi Convention was adopted at the Conference of Plenipotentiaries on 21 June 1985, by four Contracting Parties: France, Madagascar, Somalia, and Seychelles. Eleven years later, the Convention came into force after Tanzania became the sixth country to ratify the framework, joining France, Kenya, Madagascar, Seychelles, and Somalia. Between 1996 and 2003, Mauritius, Mozambique, and the Republic of South Africa acceded to the Convention, bringing the final number of Contracting Parties to the Nairobi Convention to ten. The ratifying countries are noted in Table 2. The large gap of time between adoption and ratification were due to factors related to a lack of necessary funding and political commitment by countries for the Convention.²⁵ In 2010, the Conference of Plenipotentiaries came together again to amend the Nairobi Convention to incorporate emerging issues such as climate change, coastal zone management, and the vulnerability of small island developing states (SIDS), prioritize management land-based sources and activities of pollution (LBSA) through a new Protocol, and to reaffirm their commitment to cooperate in protecting and managing the WIO region.²⁶ All Contracting Parties, with the exception of Madagascar and South Africa, have since adopted the Amended Convention and LBSA Protocol.

Table 2. Ratification of the Nairobi Convention²⁷

| Country | Date of Ratification/ Accession |
|--------------------------|--|
| Somalia | 1 March 1996 |
| France | 18 August 1989 |
| Seychelles | 20 June 1990 |
| Madagascar | 26 June 1990 |
| Kenya | 11 September 1990 |
| Comoros | 26 September 1994 |
| Tanzania | 1 March 1996 |
| Mozambique | 4 March 1999 |
| Mauritius | 3 July 2000 |
| Republic of South Africa | 16 May 2003 |

²² UNEP (1985a)

²³ UNEP (1996a)

²⁴ UNEP (1996b)

²⁵ Ibid 3, Page 454

²⁶ These issues were highlighted in the Preamble of the 2010 Amended Convention.

²⁷ UNEP (2012e)

As stated in the previous paragraph, much of the delay in the Convention coming into force was caused by a lack of commitment of national funds and political will of countries in the region. As a result, the Pan-African Conference on Sustainable Integrated Coastal Management (PACSIKOM) in July 1998 and the subsequent development of the Cape Town Declaration in December 1998 set the stage for the revitalization of the Convention. At the second Conference of Parties (COP) of the Nairobi Convention in November 1999, the Nairobi Convention and the Convention for Cooperation in the Protection, Management, and Development of the Marine and Coastal Environment of the Atlantic Coast of West, Central, and Southern Africa Region (Abidjan Convention) initiated joint meetings as a way to further advance the revitalization of the Regional Seas Agreements for Africa with the intent of developing a regional marine and coastal environmental instrument for the sub-Saharan region.²⁸ Between 2000 and 2010, the Nairobi Convention continued to grow in participation and support from regional and international stakeholders. As a result, the scope of the programs implemented under the Convention increased, prompting a review of Convention Articles and for the need of developing more specialized text on emerging issues.

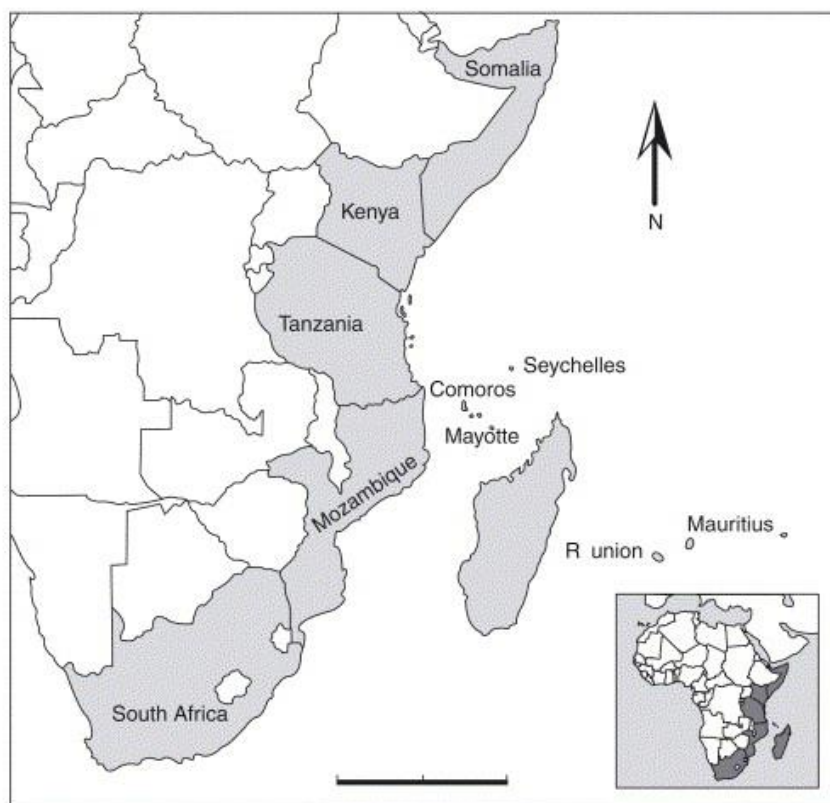


Figure 4. Western Indian Ocean State Parties to the Nairobi Convention²⁹

²⁸ UNEP 1999

²⁹ Francis and Torell (2004)

In 2010, the Nairobi Convention Secretariat held the Conference of Plenipotentiaries, in conjunction with COP6, to consider and adopt an amended Nairobi Convention. According to the Nairobi Convention Secretariat, the new Convention, entitled the “Convention for the Protection, Management, and Development of the Marine and Coastal Environment of the Western Indian Ocean,”³⁰ was designed to align the Convention with current global processes, as well as address issues and challenges facing the countries. In addition to the adoption of the amended Convention, Parties adopted a new Protocol for the “Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land-Based Sources and Activities,”³¹ and launched the development of a Protocol on integrated coastal zone management (ICZM).³² The Secretariat expects that the draft ICZM Protocol will be discussed and possibly adopted at the 8th Conference of the Parties (COP8) at the end of 2014.

A timeline depicting the history of the Nairobi Convention is provided in Figure 5.

³⁰ UNEP (2010a)

³¹ UNEP (2010b)

³² Druel et al. (2012)

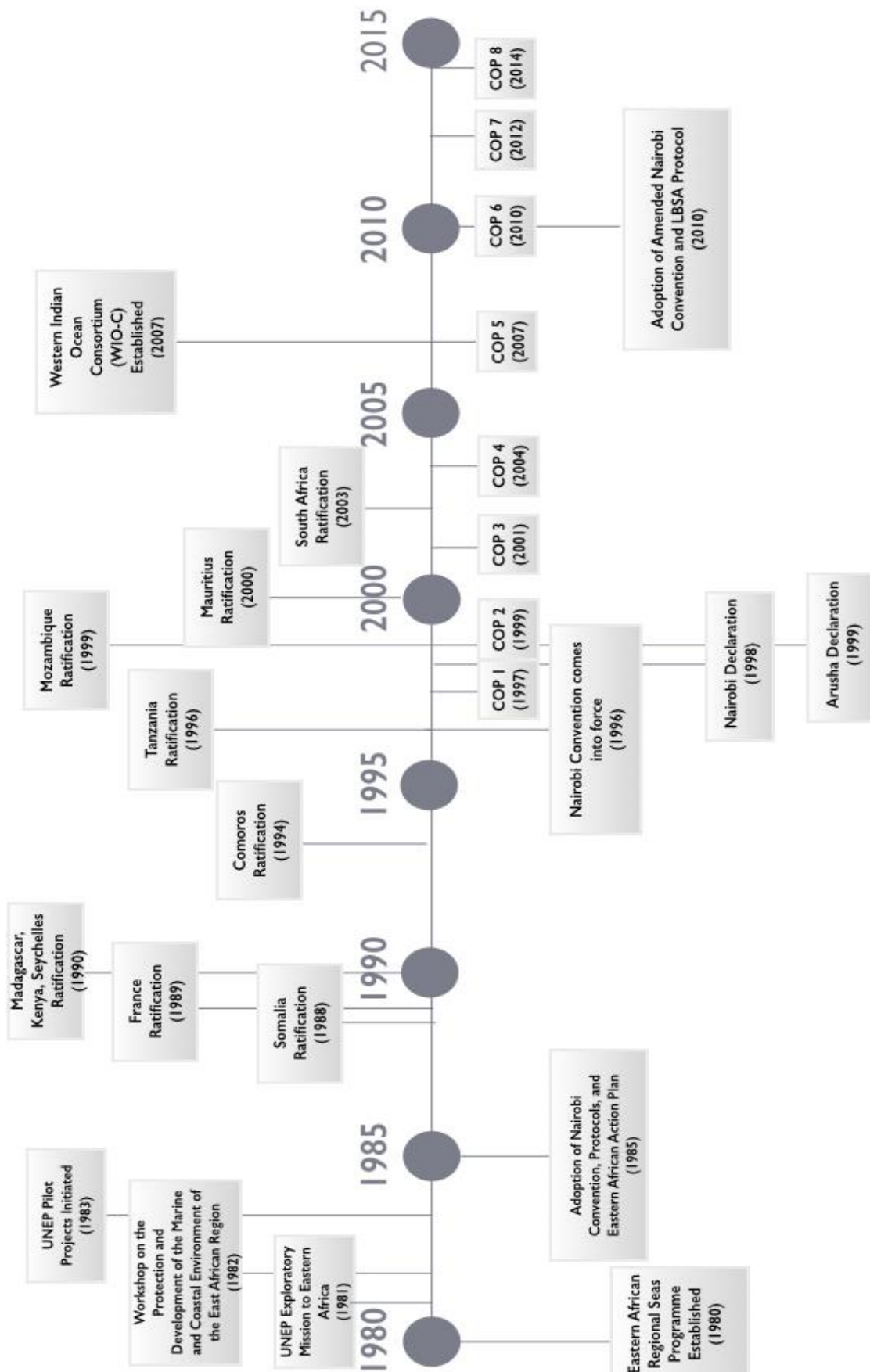


Figure 5. Historical Timeline of the Nairobi Convention and related events in Eastern Africa.

2. Goals and Principles of the Nairobi Convention

The overarching goal of a Regional Seas Programme is to provide a legal framework that protects and addresses the degradation of the oceans and coasts through sustainable management and use of resources and to provide a platform for cooperation on the regional, interregional, and international level.

Specifically, for the Nairobi Convention, the goals are twofold:³³

(To be) a regional legal framework and (assist in the) coordination of the efforts of member states to plan and develop programs that strengthen their capacity to protect, manage and develop their coastal and marine environment sustainably; (and)

(To) provide a forum for inter-governmental discussions that lead to better understanding of regional environmental problems and the strategies needed to address them; and promote sharing of information and experiences in the WIO region and with the rest of the world.

The principles of the Nairobi Convention are specified and implemented through the Articles in the Convention framework and Specific Protocols, and address the following issues:³⁴

- Pollution from ships
- Pollution caused by dumping
- Pollution from Land-Based Sources and Activities
- Pollution from Sea Bed activities
- Pollution resulting from Transboundary Movement of Hazardous Wastes³⁵
- Airborne Pollution
- Biological Diversity³⁶
- Co-operation in combating pollution
- Environmental damage from engineering activities
- Environmental Impact Assessment
- Scientific and technical co-operation

The Amended text adopted in 2010 added two new articles to the Convention: Pollution resulting from Transboundary Movement of Hazardous Wastes and Biological Diversity. The inclusion of all the principles within the Convention corresponds with the development of frameworks for addressing environmental issues on the global scale.

³³ Nairobi Convention (2011a)

³⁴ Ibid 28

³⁵ This article was added to the 2010 Amended Convention.

³⁶ This article was added to the 2010 Amended Convention.

3. Institutional Arrangements

The structure of the Nairobi Convention is composed of a Secretariat, a set of National Focal Points, the Partners of the Convention, expert groups/task forces, and the Regional Coordinating Unit (RCU). The Secretariat serves as the central administrator for the Convention and implementation of the work program.³⁷ The Conference of Parties (COP) is the main decisionmaking body of the Convention, composed of experts from each country. The COP is convened every two years to review the implementation of the Convention and the Protocols (a smaller group, the Bureau of Contracting Parties, meets between COP meetings to address issues related to implementation of the Convention). To address emerging issues in the region, the COP has also established expert groups and task forces, such as the Mangrove Network, the Coral Reef Task Force, Marine Turtle Task Force, the Forum for Academic and Research Institutes (FARI), and the Legal and Technical Working Group. All regional stakeholders are invited to attend the Conference of Parties. Over the past few years, there has been increased attendance by non-governmental organizations (NGOs) and high-level government officials from the States in the region.³⁸ Since the implementation of the Convention, there have been seven COP meetings, with the eighth COP to be held in late 2014.

The National Focal Points are the main line of communication between Contracting Parties and the Secretariat. They are charged with creating and maintaining a reporting mechanism for the Convention through compilation of national and technical reports on the marine and coastal environment.³⁹ The responsibility of being the focal point contact to the Convention is in addition to the primary national occupational duties of each member; this is considered by some to be problematic and was emphasized in particular by one non-governmental informant:

“Focal points in the governments are given the extra demand (of the Nairobi Convention) on top of their normal job in Ministries. Therefore, the knowledge of the Nairobi Convention is locked up in one department, instead of more people on the national level aware of the Convention policies,”(civil society, regional NGO)

In addition to their responsibility of establishing a biennial work program at COP meetings, the focal point contacts meet additionally twice a year to review and confer on the objectives that are to be achieved in

³⁷ Ibid 3, Page 452

³⁸ Personal communication with technical expert in region.

³⁹ Nairobi Convention (2011a)

the region. States report progress in implementing and mainstreaming the objectives of the Convention through national reports.

It is important to highlight the unique situation of the Regional Coordinating Unit (RCU) of the Nairobi Convention. Originally intended to serve as the central coordinating body of the Nairobi Convention, it presently serves as an instrument to increase the political visibility of the Nairobi Convention and mobilize resources in the region.⁴⁰ While the RCU technically exists, it isn't functional, as recounted by the interviewee from WIOMSA. At the 1997 COP1 meeting, the Contracting Parties delegated Seychelles to host the Regional Coordinating Unit and the Secretariat to Seychelles. UNEP and the government of Seychelles were to initially support the RCU until the Contracting Parties could take over the financial responsibilities of UNEP through increased contributions to the Eastern Africa Trust Fund; however, this never occurred.

According to one informant, the decision to establish a RCU was a bit premature due to a lack of established regional partnerships with the Convention (which would have brought in the necessary funds for supporting the RCU). When it was certain that the RCU could not be financially sustained by the Convention Trust Fund, a decision was made by UNEP, in consultation with the Government of Seychelles, to split the RCU into two offices: the Secretariat was to move to UNEP Headquarters in Nairobi, Kenya, and an office was to be kept in Seychelles to execute activities that would boost the political visibility of the Convention. Currently, the RCU is still in Seychelles while the Secretariat is still located in Nairobi. There are ongoing discussions on how to address the future institutional arrangement of the Nairobi Convention.⁴¹

4. Financial Arrangements

There are three major sources of funding for projects in the Western Indian Ocean region: multilateral and bilateral donors, non-governmental organizations (NGOs), and individual countries. Within the Nairobi Convention, the majority of funding for programs currently comes from bilateral donor agencies, such as the Swedish International Development Cooperation Agency (SIDA), European Union (EU), and the Norwegian Agency for Development Cooperation (NORAD), and multilateral donor agencies, such as the World Bank, African Development Bank, and the Global Environment Facility (GEF).⁴² NGOs, such as Conservation International (CI), Coral Reef Degradation in the Indian Ocean (CORDIO), the International Union for the Conservation of Nature (IUCN), and others that are involved in the region, have also provided major funds for

⁴⁰ Ibid 7, Page 452

⁴¹ See working paper on “Coordination mechanism for the Nairobi Convention” from COP7 in 2012.

⁴² Rochette and Billé (2012)

Convention programs. As Contracting Parties, Member States are obligated to make an annual contribution to the East African Regional Trust Fund, but historically these pledges have not been met.

The major multilateral and bilateral donors have invested in the WIO region through projects developed both in conjunction with the Convention, as well as with other initiatives in the region, as seen in Table 3. For example, the World Bank and GEF has contributed approximately 97.33 million USD between 1998 and 2012 towards the Large Marine Ecosystem projects of the Eastern African Region: the Agulhas and Somali Current Large Marine Ecosystem (ASCLME), South West Indian Ocean Fisheries Project (SWIOFP), the WIO Islands Oil Spill Contingency Planning project, and the WIO Marine Highway Development and Coastal Marine Contamination project.⁴³ At the same time, GEF contributed over 11.41 million USD to the Addressing Lab-Based Activities in the Western Indian Ocean (WIO-LaB) project from 2003- 2010. Bilateral agencies, such as SIDA, have also had a long-standing history of investment in the WIO region and with the Nairobi Convention, with involvement going back to the implementation of the Eastern African Action Plan in 1993.⁴⁴ Since the mid-nineties, bilateral agencies have contributed over 100 million USD to the WIO region.⁴⁵ Overall, multilateral and bilateral international donors make up a major part of the large development projects in the region.

Table 3. Major Projects Implemented in the Western Indian Ocean region by Multilateral, Bilateral, and other Agencies.

| Agencies Involved | Project Name | Project Duration | Total Cost (USD) |
|--------------------------|--|-------------------------|-------------------------|
| IOC, GEF | Western Indian Ocean Islands Oil Spill Contingency Planning | 1998-2004 | \$4.28 million |
| World Bank, GEF | Western Indian Ocean Marine Highway Development and Coastal Marine Contamination Project | 2005-2011 | \$26.20 million |
| IOC, EU | Regional programme for the sustainable management of the coastal zones of the Indian Ocean (ReCoMap) | 2006-2011 | \$24.3 million |
| AFD/FFEM | Acclimate | 2008-2012 | \$4.6 million |
| World Bank, GEF | South West Indian Ocean Fisheries Project | 2008-2013 | \$35.67 million |
| UNDP, GEF | Toward an Ecosystem Approach for Sustaining the Agulhas and Somali Current LMEs | 2008-2014 | \$31.18 million |

⁴³ Ibid 42, Page 14

⁴⁴ UNEP (1997)

⁴⁵ Estimated, based on available financial numbers.

| | | | |
|--------------------------------|--|-----------|--------------------------------|
| UNDP, IUCN, IUCN-WANI | Applying an Ecosystem-based Approach to Fisheries Management: Focus on Seamounts in the Southern Indian Ocean | 2009-2013 | \$5.76 million |
| UNEP, UNDP, GEF | Implementing IWRM and WUE in the Indian and Atlantic Ocean SIDS | 2010-2014 | \$26.04 million |
| WWF, FFEM | Support to the establishment of a network of MPAs in the WWF Indian Oceans Islands Marine Ecoregion (WIOMER) | 2010-2015 | \$20.29 million |
| IOC, European Commission | Project on the Implementation of a Regional Fisheries Strategy | 2011-2016 | \$28.4 million |
| GEF, UNDP | Western Indian Ocean LMEs Strategic Action Programme Policy Harmonization and Institutional Reforms SAPPHIRE Project | 2013-2018 | \$80.7 million |
| | | | Total: \$287.42 million |

The NGO members of the Western Indian Ocean Consortium (WIO-C) also contribute millions of dollars annually to the WIO region through assistance and collaboration with projects implemented by the Convention. For example, the World Wide Fund for Nature (WWF), in collaboration with French Foreign Environment Facility (FFEM) have contributed over \$20.29 million USD to fund the establishment of a system of MPAs in critical habitat areas along the East African coast. While the monetary contributions are not publicly available for all projects, the level of participation of NGOs in local and regionally based projects is high. Proposals are being developed in conjunction with WIO-C and the Nairobi Convention Secretariat on the conservation of mangroves in the coastal region, as well as establishing a system of MPAs in the Mozambique Channel. With the increased involvement of WIO-C with the Nairobi Convention, financial and in-kind contributions made by NGOs are expected to increase.

The countries of the WIO region have also financially contributed to the projects aiming to improve the environmental conditions of the regional coasts and ocean. Under the Nairobi Convention framework, Contracting Parties are obligated to make financial contributions to the Eastern Africa Trust Fund. The implementation of the Trust Fund fulfills one of the main goals established by the Regional Seas Program: to become financially self-sufficient.⁴⁶ The trust fund has been set up in a way to accept annual contributions based on predetermined amounts for each Contracting Party based on the national economic and political conditions. The Trust Fund is the main source of financing for sustaining the Secretariat employees and activities, as well as contributing to the development of new proposals and projects managed under the Nairobi

⁴⁶ UNEP (1994)

Convention. However, over time the contributions made by Contracting Parties have been inconsistent; only 56% of the pledges made by Contracting Parties have been fulfilled (shown in Table 4). If a Contracting Party fails to meet the minimum annual contribution, the amount is added on to the next year's contribution. While there is no individual consequence for Contracting Parties if they fail to pay, the lack of contributions ultimately affects the overall impact of the Convention can have in the WIO region.

Table 4. Financial Pledges and Contributions by Contracting Parties of the Nairobi Convention

| Contracting Party | Assessed Annual Contribution (USD) to be made by Contracting Parties to the East Africa Trust Fund | Number of Years as a Contracting Party⁴⁷ | Total Pledged Contribution (USD) made by Contracting Parties to the East Africa Trust Fund⁴⁸ | Total Contribution (USD) made by Contracting Parties to the East Africa Trust Fund⁴⁹ | Total Contribution (%) Fulfilled by Contracting Parties to the East Africa Trust Fund |
|--------------------------|---|--|--|--|--|
| Comoros | 15,100 | 18 | 271,800 | 0 | 0 |
| France | 78,000 | 23 | 1,794,000 | 1,482,477 | 83 |
| Kenya | 45,302 | 22 | 996,644 | 908,735 | 91 |
| Madagascar | 22,651 | 22 | 498,322 | 144,630 | 29 |
| Mauritius | 30,201 | 12 | 362,412 | 271,005 | 75 |
| Mozambique | 45,302 | 13 | 588,926 | 135,906 | 23 |
| Seychelles | 15,100 | 22 | 332,200 | 236,414 | 71 |
| Somalia | 15,100 | 16 | 241,600 | 27,200 | 11 |
| South Africa | 37,500 | 9 | 337,500 | 225,000 | 67 |
| Tanzania | 45,302 | 16 | 724,832 | 24,178 | 3 |
| Total | 349,558 | | 6,148,236 | 3,455,545 | 56 |

While there is an influx of major funds into the WIO region through multilateral, bilateral, and NGOs donors, the majority of the funds are dedicated to projects not associated with the Nairobi Convention. The total contribution to projects implemented outside of the Convention is roughly three times larger than projects implemented in association with the Convention (see Tables 3 and 5).⁵⁰ As a result, many of the issues that the Convention may wish to address through the Work Programme cannot either be sufficiently funded or implemented at all. However, some of the implemented projects in the region do indirectly benefit Convention goals and activities. For example, the Western Indian Ocean Islands Oil Spill Contingency Planning and Western Indian Ocean Marine Highway Development and Coastal Marine Contamination projects each have an

⁴⁷ As of 2012

⁴⁸ As of 2012; resulting number from number of years as a Contracting Party multiplied by the assessed annual contribution.

⁴⁹ As of November 2012; EAF/UNEP (2007a)

⁵⁰ Estimated, based on available financial figures.

objective to establish national and regional oil spill contingency plans in each of the projects' countries. This initiative fulfills the activities called for in the concerning Cooperation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region. Another example is the establishment of MPAs through the WIOMER project implemented by WWF and FFEM, which is assisting in the goals established by the Protocol concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region.

Table 5. Major Projects Implemented under the Nairobi Convention

| Agencies Involved | Project Name | Project Duration | Project Cost (USD) |
|---|---|-------------------------|---------------------------|
| SIDA | Eastern African Coastal Resource Database and Atlas | 1993-1998 | N/A |
| GEF | Preparation of a transboundary diagnostic analysis and a strategic action programme for the marine and coastal environment of the Western Indian Ocean | 1997 | N/A |
| SIDA | Protection and Management of the Coastal and Marine Environment of Eastern Africa | 1999 | N/A |
| SIDA | Assessment and Control of marine pollution from land-based activities in the Eastern African region | 1998-2003 | N/A |
| GEF, Norway, Contracting Parties, UNEP | Addressing Lab-Based Activities in the Western Indian Ocean (WIO-LaB) | 2003-2010 | \$11.41 million |
| UNEP, GEF WIO-LaB Project, Nairobi Convention Secretariat; GSDI Association | Nairobi Convention Clearinghouse and Information Sharing System | 2006-2010 | .77 million |
| SIDA | Strengthening the coordination mechanism, management, and assessment activities within the Nairobi and Abidjan Conventions | 2007-present | \$1.41 million |
| UNEP/Sweden | UNEP Africa Marine and Coastal Programme | 2010-2014 | \$4.2 million |
| UNEP, African Union Economic Commission | Support for Ratification and Implementation of the Marine and Coastal Environment of the Western Indian Ocean from Land-based Sources and Activities (LBSA) | 2010-present | N/A |
| GEF | Partnerships for the Implementation of the WIO-SAP | 2013-2017 | \$77.57 million |
| Total: | | | \$95.36 million |

The inconsistencies in the contributions from Contracting Parties have also made it difficult for the Convention to be financially able to implement projects that fulfill the activities called for the Convention and Protocol texts. To address this issue, the Contracting Parties implemented a new Work Program that was based

on three funding scenarios: current, improved, and optimal funding levels at COP5.⁵¹ The tiered Work Program has subsequently been utilized for the 2008-2012 and 2013-2017 Work Programs. At each increased level of funding, the Work Program is able to execute more projects than what can be supported at lower funding levels. For the 2010-2011 portion of the 2008-2012 Work Program, the overall level of funding was considered sub-optimal, and limited the work the Secretariat's ability to participate in regional projects.⁵² According to the COP7 Summary Report, "the bulk of the catalytic work of the Convention was limited to the SIDA supported (project)."⁵³

Without further support of the Trust Fund by Contracting Parties, the Nairobi Convention will not be able to become a financially self-sustaining framework. Recent contributions from Contracting Parties have increased, but they are still inconsistent and many of the States are severely past due on annual contributions. The Convention continues to be highly dependent on funding from bilateral and multilateral donors for large-scale regional projects. As much of the financial resources in the region are not associated with the activities of the Convention, the level of impact the Nairobi Convention has on the WIO region is limited. The issue of the funding mechanism of the Convention has consistently been a source of concern, as historically noted in UNEP (2000) and COP meeting reports.

5. Summary

| Variable | Definition of Variable | Indicators being Evaluated | Evaluation of Indicator |
|----------|--|----------------------------|--|
| Outputs | Laws, policies, and regulations that states adopt to implement an International Environmental Agreements and transform it from international to national law | Problem identification | <ul style="list-style-type: none"> Problems have been identified in region |
| | | Response to problems | <ul style="list-style-type: none"> Adoption of East African Action Plan Adoption and Ratification of Nairobi Convention Adoption of the Amended Nairobi Convention in 2010 |
| | | Goals | <ul style="list-style-type: none"> Goals are agreed upon: Promotion of sharing information and experiences |
| | | Principles | <ul style="list-style-type: none"> Principles are identified in the Convention text: Regional cooperation |
| | | Extent of ratification | <ul style="list-style-type: none"> All Contracting States have ratified the 1985 Convention and two Protocols Eight out of ten Contracting Parties have signed 2010 Amended Convention and LBSA protocol (Madagascar and South Africa have not signed) |

⁵¹ UNEP (2007a)

⁵² Ibid 25, Page 57

⁵³ Ibid 25, Page 58

| | | | |
|--|--|---------------------------|---|
| | | | <ul style="list-style-type: none"> • Amended Convention is not in force |
| | | Institutional arrangement | <ul style="list-style-type: none"> • Centralized Secretariat • Non-functioning Regional Coordinating Unit (RCU) • National Focal Points in place |

The results of the formation of the Nairobi Convention can be seen throughout the policies and programs implemented throughout the region in the past twenty years. As the first regional framework to conserve, protect, and manage the WIO marine and coastal environment, the Nairobi Convention has evolved into the primary representative on environmental matters in Eastern Africa. The importance of the Convention as a “gateway” to larger processes and collaborations was emphasized by one civil society informant:

“The Nairobi Convention the gateway of the Western Indian Ocean regarding to the regional environment. It is a gateway used by the African Union, international bodies, etc,” (civil society, global NGO).

Presently, the Convention and accompanying protocols are ratified by 100% of the Contracting Parties. This in itself is an indicator of showing the trust of States in the competency of the Convention in tackling regional environmental issues. As discussed previously, only four countries adopted the Convention in 1985. Since then, there are ten Contracting Parties to the Convention, who have gone through a process of amending the Convention and adding additional Protocols. The Contracting Parties believe that the Convention is a successful tool for regional collaboration, as shown by their increasing involvement over the years.

The Convention has become a conduit for UN and multilateral funding agencies, NGOs, and IGOs activities. For example, the execution of three recent Global Environment Facility (GEF)–funded projects has been aided by the Convention’s established connections between WIO countries:

“The development and actions of the three GEF funded regional programs- the Addressing Land Based Activities in the Western Indian Ocean (WIO-LaB), the Agulhas Somali Current Large Marine Ecosystem (ASCLME), and the Southwestern Indian Ocean Fisheries Program (SWIOFP) and their second iterations- I don’t think the inter-country collaboration necessary for these would have happened (as easily) without the Nairobi Convention,” (civil society, regional NGO).

While this may be, the level of funding outside of the Nairobi Convention is three times larger than what is being implemented under the Convention, leading to the question of what can be done to encourage more funds to be contributed to Nairobi Convention programs and activities.

The Eastern African Regional Trust Fund has seen an increase in the amount of funds contributed by Contracting Parties in the past few years. Historically, the Trust Fund has seen a lack of contribution, with States accruing large sums of past due payments. Participating countries have begun to reduce the amount of debt they owe to the Convention, along with paying the current contributions due. The increase in funds available in the Trust Fund will in the short term allow for more projects to be implemented during the 2013-2017 Work Program, and in the long run contribute to the self-sufficiency of the Convention and Action Plan.

From an institutional structure standpoint, one of the main weaknesses of the Convention is the number of staff employed, as emphasized by one informant who has been involved in the Convention since the nineties:

“The main weakness of the Nairobi Convention is that there are very few staff members. There needs to be an increase in the number of staff,” (technical expert, WIOMSA).

With a small staff, there are limitations to what can be accomplished by the Secretariat in terms of mobilizing the implementation of the Program of Work, in addition to planning and managing COP meetings and discussions between other bodies of the Convention. This is a symptom of the bigger issue of the lack of adequate finances.

In summary, the Nairobi Convention has an established framework of goals and principles that guide its actions towards protecting, conserving, and managing the Western Indian Ocean coastal and marine environment. The institutional structure of the Nairobi Convention is centered around a Secretariat, which has become the primary coordination and administrative mechanism due to the defunct Regional Coordinating Unit in Seychelles. The Convention is mainly financed through contributions from bilateral and multilateral donors and international and regional organizations, due to the inconsistency of annual Trust Fund contributions from member States. This has led to financially constrained operations of the Secretariat and limited implementation of Convention programs. The majority of the funding coming into the region comes from projects not associated with the Nairobi Convention, which have limited interaction of with the mandates and activities called for by the Eastern Africa Regional Seas Program. The financial and institutional conditions, as well as the established framework of goals and principles of the Convention, directly affect the level of implementation of the Convention, as discussed in the next section.

B. The Performance of the Nairobi Convention

| Variable | Definition of Variable | Indicators being Evaluated |
|----------|---|---|
| Outcomes | Changes in how governments and sub-state actors act | <ul style="list-style-type: none"> • Implementing mechanisms in place and how are they working • Programs and projects in place |

This section discusses the behavioral changes, or regime outcomes, caused of the Nairobi Convention. Indicators that are highlighted including the mechanisms which are used to implement the Convention and how they are operationalized, the actions of key actors and players in the region, and the effect of the Convention implementation on regional policymaking.

1. Operationalization of the Convention

The Convention framework provides support for the implementation of a program to protect, manage, and sustainably develop the Western Indian Ocean region. Guided by the direction of the Action Plan and the activities called for in the Protocols, the overall theme of environmental sustainability is implemented through biennial Work Programme. It is through implementation of the Convention Protocols, Work Programme, and projects and programs that the goals of the Nairobi Convention are attained.

a. Eastern Africa Action Plan and Work Programme

As previously discussed, the Eastern Africa Action Plan was adopted in 1985 as a result of the 1982 Workshop on the Protection and Development of the Marine and Coastal Environment of the East African Region held in Seychelles. Its purpose is to provide direction (through theme components) for the implementation of the Nairobi Convention over time. There are five main components of the Action Plan: environmental assessment, environmental management, environmental legislation, institutional and financial arrangements, and supporting measures.⁵⁴ The goals of the activities of the Action Plan include the assessment and evaluation of the causes, magnitude, and consequences of environmental problems; promotion of methods and practices for the management of development activities that safeguard environmental quality and utilize resources wisely and on a sustainable basis; adoption of regional legal agreements and strengthening of national legislation for the protection and development of the marine and coastal environment; and the establishment of institutional machinery and adoption of financial arrangements required for the successful implementation of the action plan.⁵⁵

⁵⁴ UNEP (1985c)

⁵⁵ Ibid 63

At the COP7 meeting in 2012, a conference paper was presented on a draft new action strategy (action plan) for the Western Indian Ocean region, with the purpose of “provid(ing) a governance framework that responds to new and emerging environmental issues.”⁵⁶ The new strategy was the result of a call for the review of the East African Action Plan by member States. As environmental degradation continues to occur in the region, along with new and emerging issues changing the perception of management, knowledge, and use of ocean resources in the WIO, a new approach is needed to continue the sustainable development of the coastal and marine environment. The new action strategy aims to tackle emerging issues such as climate change, oil and gas development in the region, and the Rio+20 outcomes through future Programs of Work.⁵⁷ Through planning actions for each of the priorities in short, medium, and long timeframe scales, the new action strategy provides a more practical approach to dealing with current and emerging uses.

The operationalization of the Eastern African Action Plan is through a Convention Work Programme. The first Work Programme was adopted by the Contracting Parties in 1999 at COP2. Subsequent Work Programmes have been adopted for 2002-2003, 2004-2007, 2008-2012, and 2013-2017 timeframes. The Work Programme is designed to be a tool for the Secretariat and partners to utilize in achieving goals and targets set by the Convention and Protocols.⁵⁸ Building on the successes of previously implemented Work Programmes, the new Work Programme addresses the themes of assessments and capacity building, management, coordination and legal aspects, and information and awareness through its projects and programs.

The level of implementation of the Work Programme is dependent on funding, partnerships, and capacity available at any given time. Work Programme activities are financed through the East African Trust Fund and funds contributed by partners and donors. However, as stated earlier, funding contributions to the Trust Fund from member States is variable, creating challenges in operationalization of the Work Programme and a dependence on partnerships to complete activities.⁵⁹ The Work Programme is therefore structured for scenarios of optimal and current financial capacity.

b. Cooperation in Combating Marine Pollution in Cases of Emergency

⁵⁶ UNEP/EAF (2012c)

⁵⁷ Ibid 92

⁵⁸ UNEP (2012d)

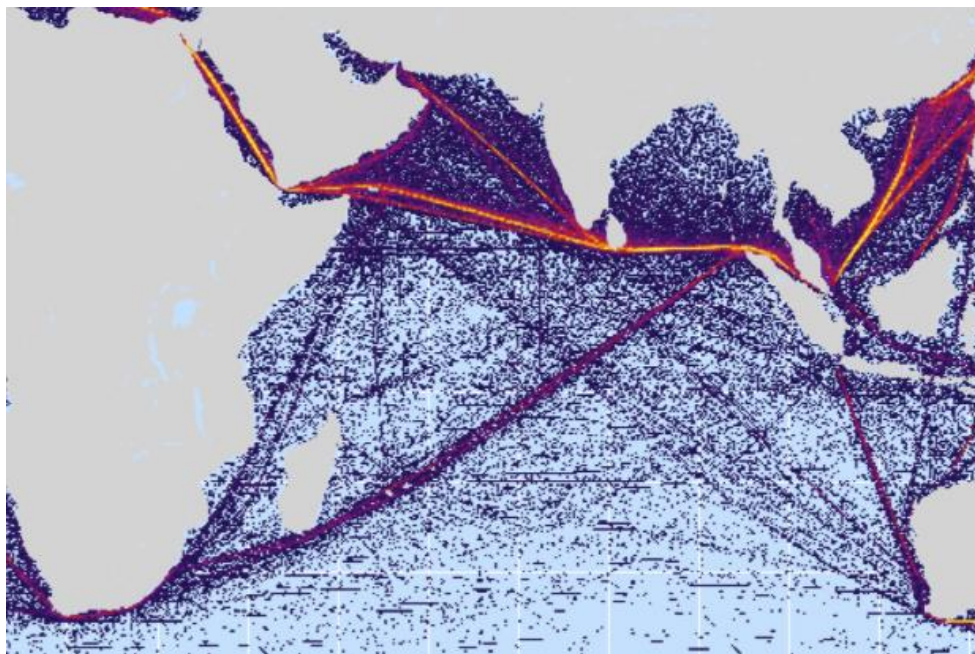
⁵⁹ Ibid 92, Page 71

The primary reason that the Eastern African Regional Seas Program was initially established was to address the transboundary issue of oil spills in the Western Indian Ocean. According to the WIOMSA informant:

“The focus at the time (in Western Indian Ocean during the 1980s) was more towards pollution and conservation of the environment. Most Regional Seas Programs that were being established focused on pollution. However, in the Western Indian Ocean, pollution at that time was not that serious,” (technical expert, WIOMSA).

Historically, there has been a large amount of shipping that passes through the region, along with the importation of oil. There are three major shipping routes in the Western Indian Ocean: one that circumnavigates the Agulhas Cape/ Cape of Good Hope towards the Strait of Hormuz via the Mozambique Channel, another that also circumnavigates the Agulhas Cape/Cape of Good Hope but crosses the Indian Ocean towards the Strait of Malacca, and finally a route that passes through the Bab-el-Mandeb passage, crossing the northern portion of the WIO to the Strait of Malacca. These routes, especially the route passing through the northern portion of the WIO, are some of the most important shipping routes of oil in the world. In addition to oil, these routes have also become important passages for coal, natural minerals, and commodities passing from the Eastern to the Western Hemisphere.⁶⁰

Figure 4. Major Shipping Routes in the Indian Ocean⁶¹



⁶⁰ Michel and Sticklor (2012)

⁶¹ Adapted from National Center for Ecological Analysis and Synthesis (2008)

The Protocol Concerning Cooperation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region addresses many of the original Articles of the Convention, including combatting pollution from shipping and dumping, and cooperation in combatting pollution, and pollution resulting from transboundary movement of hazardous wastes from the amended Convention. The general provisions in the Protocol call for Contracting Parties to cooperate in preventing and reducing the impact of marine pollution in the region through the use of contingency plans on both the national and regional level, enactment of legislation, the ability to identify and respond to marine pollution incidents, and designation of national authority.^{62,63} The Contracting Parties collaborate with the International Maritime Organization (IMO) in implementing these provisions.⁶⁴

Since the adoption of the Protocol, there have been two GEF-funded projects implemented to develop national and regional oil spill contingency plans. From 1998 to 2004, the “Western Indian Ocean Islands Oil Spill Contingency Planning” project was implemented to assist in developing the Western Indian Ocean island states of Comoros, Mauritius, Madagascar, and Seychelles oil spill response capacity at a national and regional level.⁶⁵ Through the project, an institutional framework for coordinating a national response to an oil spill emergency has been established, along with the translation of relevant IMO conventions into national policies occurring in all four countries. All four countries developed a national oil spill contingency plan, and successfully tested them prior to the completion of the project. Regional cooperation in the event of oil spills was also strengthened through joint exercises and the establishment (but not operationalization) of a regional response office (RCC) in Madagascar. Overall, the project was considered a success in strengthening the mechanisms used on national and regional levels to protect the marine and coastal environment.⁶⁶

Building off of the successful completion of the Western Indian Ocean Islands Oil project, GEF, in a partnership with the World Bank, implemented the “Western Indian Ocean GEF-Marine Highway and Coastal Contamination Prevention Project.” The six-year project (2007-2013) included all Nairobi Convention Contracting Parties (with the exception of La Reunion and Somalia) within its scope. One of the main project objectives was focused on building capacity for national and regional oil response and contamination

⁶² Ibid 20

⁶³ Ibid 40

⁶⁴ See Article 9 of the Nairobi Convention Protocol Concerning Co-Operation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region.

⁶⁵ GEF (2004)

⁶⁶ Ibid 65

prevention. As a result, all countries- besides Kenya, Mozambique, and Tanzania- have updated, developed, and implemented a national oil spill contingency plan. Environmental sensitivity maps have been created to identify areas of special concern to contamination in an effort develop national capacity to respond and prevent pollution. On the regional level, the project addressed regional cooperation through a three steps: the first two steps involved the development and signing of a regional agreement and oil contingency plan by all participating countries. The third step intended to establish another RCC, as the RCC that was originally established in Madagascar by the WIO Islands Oil Spill Project, was never operational. At the closing of the project, South Africa had been selected to be the host of the RCC, but appears to have never been approved by the national government.⁶⁷

The outcome of these two projects on a national level, in relation to the Protocol on Emergency Pollution Response, can be seen in Table 6.

Table 6. National Outcomes of the Nairobi Convention Protocol on Emergency Pollution Response⁶⁸

| Contracting Party | Provisions of Protocol | | | |
|----------------------------|--|---|--|--------------------------------------|
| | Ratification of international agreements | Development of national oil spill contingency plans | Ability to identify and respond to marine pollution incidents | Identification of national authority |
| Comoros | -MARPOL 73/78 I/II, III, IV, V -CLC92 -FUND92 -OPRC90 | Prepared, tested, and updated national oil spill contingency plan | -Sensitivity maps have been developed but their national validation is pending -Oil spill response equipment provided | Ministry of Environment |
| France (La Reunion) | -MARPOL 73/78 I/II, III, IV, V -CLC92 -FUND92 -OPRC90 | Unknown, but most likely exists | Unknown, but has participated in regional oil spill simulation exercises | N/A |
| Kenya | -MARPOL 73/78 I/II, III, IV, V -CLC92 -FUND92 -OPRC90 | National oil spill contingency plan has been developed but not approved at the national level | -Sensitivity maps have been developed but their national validation is pending | Kenya Port Authority |

⁶⁷ Ibid 66

⁶⁸ PERSGA (2014); ITOPF (2014); GEF (2004); GEF (2013); Sea Alarm (2010); Mauritius Ministry of Environment and Sustainable Development (2007); IMO (2014)

| | | | | |
|---------------------|---|---|--|---|
| Madagascar | -MARPOL 73/78 I/II, III, IV, V -CLC92 -FUND92 -OPRC90 | Prepared, updated, and tested national oil spill contingency plan | -Sensitivity maps have been developed but their national validation is pending -Oil spill response equipment provided | No designated authority, however, the Ministry of Transport and/or the Ministry of Environment and Ministry of Defense may become authority |
| Mauritius | -MARPOL 73/78 I/II, III, IV, V -CLC92 -FUND92 -OPRC90 | Updated and tested national oil spill contingency plan | -Sensitivity maps have been developed -Oil spill response equipment provided | Department of Environment, Ministry of Environment and Sustainable Development |
| Mozambique | -MARPOL 73/78 I/II, III, IV, V -CLC92 -FUND92 -OPRC90 | National oil spill contingency plan has been developed but not approved at the national level | -Sensitivity maps have been developed -Oil spill response equipment provided | Maritime Administration and Safety Authority/ The Maritime Administration and Surveillance Institute |
| Seychelles | -MARPOL 78/78 I/II -CLC92 -FUND92 -OPRC90 | Updated and tested national oil spill contingency plan | -Sensitivity maps have been developed | Seychelles Coast Guard |
| Somalia | No agreements have been ratified | There is no national oil spill contingency plan | N/A | N/A |
| South Africa | -MARPOL I/II, III, V -CLC92 -FUND92 -OPRC90 | Updated and tested national oil spill contingency plan | N/A | -South African Marine Safety Authority -Department of Environmental Affairs and Tourism -National Department of Transport |
| Tanzania | -MARPOL 73/78 I/II, III, IV, V -CLC92 -FUND92 -OPRC90 | National oil spill contingency plan is under development | -Sensitivity maps have been developed but their national validation is pending -Oil spill response equipment provided | -Tanzania Harbors Authority -The Ministry of Infrastructure Development -Surface and Marine Transport Regulatory Authority |

| | | | | |
|--|--|--|--|---|
| | | | | -Tanzania Petroleum Development Corporation |
|--|--|--|--|---|

The Contracting Parties have made significant progress in achieving all the provisions of the Protocol on Emergency Pollution Response. All countries⁶⁹ have adopted the major relevant international agreements on oil spill and response, and have translated the obligations of these agreements into national policies to be implemented by identified government authorities. As well, they have initiated the process of developing a national oil contingency plan, with most already implemented and updated over time as needed. Training and education activities have been conducted in an effort to strengthen the capacity of identification, response, and prevention of oil spills in critical ecosystems in the region. Specifically, environmental sensitivity maps have been developed and response equipment has been procured by a large majority of the Contracting Parties. Regional coordination of oil spill response, however, has not been accomplished, even after the completion of two major projects on response and coordination; the delay in operationalization of the RCC has in recent years become an issue of concern for the region. In 2011, the Panamanian cargo ship “Angel 1” bottomed-out on the coral reef off southeast of Mauritius. As a response, the country of Mauritius deployed their national contingency plan, but did not have the adequate capacity to individually address the situation. While the GEF project had established and tested a regional coordination response plan for an oil spill in the island region, Mauritius still wasn’t able call upon the regional plan due to the non-functioning RCC in Madagascar and therefore had to call upon Sri Lanka and India for assistance.⁷⁰

There have been significant changes in actor behavior regarding transboundary marine pollution in the Western Indian Ocean. Since the adoption of the Nairobi Convention, all member States (with the exception of Somalia) have developed a national contingency plan for oil spills, as well as participated in national and regional capacity building initiatives. While there has been some training and education initiatives enacted by projects implemented in the region, more concentrated effort is needed in educating national stakeholders in the response and prevention of oil spills, especially with local practitioners and the operationalization of sensitivity maps. The operationalization of a regional coordination center should be expedited by the government of South Africa in order to prevent a repeated M/V Angel 1 situation. With the increasing level of shipping traffic that passes through the Western Indian Ocean, the Nairobi Convention Protocol will continue to be an important tool to protect the marine environment.

c. Protected Areas and Wild Fauna and Flora

⁶⁹ With the exception of Somalia, which will not be included in the summarized analysis in this section.

⁷⁰ GEF (2013)

The marine and coastal ecosystems of the Western Indian Ocean are rich in biodiversity and vast in natural resources. The economic value of the ecosystem goods and services of the region is estimated to be worth over 25 billion USD annually,⁷¹ providing the necessities needed for livelihood and development for much of the coastal population. The East African coast supports rich wildlife populations, of which sixty to seventy percent are endemic in the Indo-Pacific, including:⁷²

- 3,000 species of molluscs
- 1,500 species of fish
- 1,000 species of seaweed
- 300 species of crabs
- 200 coral species
- 100 species of sea cucumbers
- 50 species of starfish
- 35 species of marine mammals

Ecosystem goods and services also provide a significant amount of economic profit in the Western Indian Ocean. Coastal tourism makes up a large portion of the income generated in the Western Indian Ocean, with over 20 million people visiting and providing the region with over 6 million USD per year.⁷³ A smaller, yet still important facet of the Western Indian Ocean economy is the fisheries sector, constituting 4.8% of the world’s total catch (or 4.3 million tons) per year.⁷⁴

Despite the Western Indian Ocean being one of the least ecologically disturbed areas of the global ocean, the region is dealing with the challenges of balancing natural changes, human activities, and environmental conservation.⁷⁵ Table 4 describes that the four main threats to the region’s biodiversity: overexploitation of natural resources, habitat degradation, land-based sources of pollution, and marine pollution. Coastal communities in the region are highly dependent on the survival of the natural resources. The coastal and marine ecosystem provides shelter from storms, sustain livelihoods, and generate income. However, increasing human activity threatens the environment of the Eastern Africa region due to rapid population growth, economic development, and trade growth.⁷⁶

Table 4. Threats to Marine Biodiversity and their Sources⁷⁷

| Threat | Sources |
|--|---|
| Over exploitation of natural resources | <ul style="list-style-type: none"> • Overharvesting of fish stocks and invertebrates |

⁷¹ UNEP/ Nairobi Convention Secretariat (2009a)

⁷² WWF (2014)

⁷³ UNEP/Nairobi Convention (2009a)

⁷⁴ FAO (2012)

⁷⁵ Ibid 54

⁷⁶ Ibid 25

⁷⁷ Rocliffe (2010)

| | |
|---------------------------------|--|
| | <ul style="list-style-type: none"> • Destructive fishing practices • Mangrove destruction/conversion • Poaching of turtles and eggs |
| Habitat degradation | <ul style="list-style-type: none"> • Mangrove and coastal forests clearance • Coastal urbanization and industrialization • Development of transport infrastructure • Conversion to agriculture and aquaculture • Coal mining for building materials |
| Land-based sources of pollution | <ul style="list-style-type: none"> • Tourism • Coastal urbanization and industrialization • Agricultural pollution • Soil erosion • Land-based extraction of minerals, oil, and gas |
| Marine pollution | <ul style="list-style-type: none"> • Oil and gas development • Oil spills and illegal discharges • Hazardous waste dumping • Noise pollution |

The Contracting Parties of the Nairobi Convention, in an effort to protect the wild fauna and flora and natural habitats in the region, adopted the Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region. Through the Protocol, the Parties are responsible for developing and implementing protective measures in their respective countries. The two provisions of the Protocol call for Contracting Parties to protect all critical ecosystems and biodiversity, sustainably manage the extraction of natural resources, establish national conservation strategies that correspond to regional conservation policy frameworks, and when necessary, establish protected areas.⁷⁸

The identification of critical marine and coastal ecosystems has become one priority action in the region since the adoption of the Nairobi Convention. Through the WWF Eastern African Marine Ecoregion process, eight sites have been identified along the coasts of South Africa, Mozambique, Tanzania, and Kenya as priority areas of global importance in protecting biodiversity. A similar process is being undertaken in the Western Indian Ocean islands states under the Western Indian Ocean Marine Ecoregion Programme (WIMOER).⁷⁹

In the 1960s and 70s, member States were establishing marine protected areas (MPAs) in the Western Indian Ocean region. These MPAs were smaller than 10 km² and narrowly focused on protecting a particular species or habitat.⁸⁰ It wasn't until the 1990s when larger (over 200 km²) multiple-use MPAs became utilized

⁷⁸ Ibid 20

⁷⁹ Ibid 55, Page 18

⁸⁰ Wells et al. 2007

for protecting marine and coastal ecosystems in the region.⁸¹ However, designation of MPAs within jurisdictional boundaries has been limited. For example, Kenya has 8.7% of its waters protected by MPAs, 8.1% for Tanzania, and only 4% in Mozambique.⁸² While all of the member States have established marine protected areas, none have implemented specific legal frameworks that particularly focus on marine protected areas.⁸³

While the importance of coastal and marine ecosystems in the Western Indian Ocean is known to countries in the region, there has been little has accomplished since the adoption of the Nairobi Convention protocol towards protection and conservation of these areas. In 2012, the Western Indian Ocean Strategic Action Programme (WIO-SAP) was adopted by member States at COP7, and addresses the protection, restoration, and management of critical coastal habitats as one of four strategic components for the protection of the region from land-based sources and activities. The component goals align with the provisions of the protocol, including the sustainable use of coastal and marine resources and the protection of critical habitat and biodiversity through MPAs. In addition, area based management tools such as ecologically or biologically significant areas (EBSAs), vulnerable marine ecosystems (VMEs), marine protected areas (MPAs), and particularly sensitive sea areas (PSSAs) were discussed at COP7 in relation to how they can be addressed in upcoming projects and programs coordinated by the Nairobi Convention.

d. Land-Based Sources and Activities

As shown in Table 4, land-based sources and activities of pollution are one of the major threats to the marine environment in the Western Indian Ocean region. The growth of the coastal population and development of coastal-based activities has dramatically increased the amount of pollution that drifts out to sea. Hot spot areas in the vicinity of large urban areas, such as Mombasa, Dar es Salaam, Maputo, Durban, Tuléar, Port Louis, and Port Victoria produce a majority of the pollution caused by anthropogenic activities.⁸⁴ Agricultural runoff causes dead zones in coastal communities, with high levels of nitrogen and phosphorous creating large levels of eutrophication and hypoxia.⁸⁵ Biological contaminants from municipal and agricultural wastes have a large-scale impact on the health of the entire region.⁸⁶ Direct effects of pollution in the WIO area include loss of biodiversity, economic loss in the tourism industry, and contamination of drinking water for coastal residents.

⁸¹ Ibid 65, Page 70

⁸² Ibid 56, Page 95

⁸³ Ibid 56; UNEP/Nairobi Convention Secretariat and WIOMSA (2009)

⁸⁴ Ibid 56, Page 20

⁸⁵ Ibid 48

⁸⁶ Ibid 56, Page 22

In the 1985 Convention framework, Article 7 addressed pollution from land-based sources and activities (LBSA). However, due to rapid development of the coastal region, LBSA has become an exponentially larger problem than it has been in the past. In 2010, in an effort to establish a roadmap as to how the region will manage land-based sources of pollution, the Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land-Based Sources and Activities was adopted by the Conference of Plenipotentiaries alongside the Amended Convention. Another purpose of the Protocol, according to the Secretariat informant, was to mainstream LBSA policies with local and national laws. The five provisions of the Protocol call for regional cooperation using strategic assessment tools and the polluter pays and precautionary principles to prevent and reduce the impacts and effects of anthropogenic sources of pollution.⁸⁷

In 2004, a partnership between the member States, the Norwegian government, UNEP, and the Global Environment Facility (GEF) initiated the project “Addressing land-based activities in the Western Indian Ocean (WIO-LaB).” The purpose of the project was to reduce the pressure on the marine environment through regional capacity development and strengthening of institutions to prevent land-based sources of pollution through the implementation of the Nairobi Convention and the Global Programme of Action for the Protection of the Marine Environment (GPA).⁸⁸ Products of the project include the Western Indian Ocean Transboundary Diagnostic Analysis (TDA) (which subsequently was utilized to develop the Western Indian Ocean Strategic Action Programme (WIO-SAP)), and the development of a LBSA Protocol for the Nairobi Convention (which has been adopted). Nine pilot programs served as a demonstration the capabilities of the GPA, and were conducted in Mauritius, Kenya, Madagascar, Comoros, Mozambique, Seychelles, South Africa, and Tanzania.

The implementation of the WIO-LaB project used the existing institutional structure of the Nairobi Convention for advancing regional and national policies on land-based sources of pollution. The National Focal Points of the Convention served as the conduit of activity for the development of national plans of action (NPAs). At times, the role of the NFP became the lynchpin of the project, due to the position of the NFP being reassigned.⁸⁹ According to the UNEP Evaluation Report (2010), this had an effect of a “loss of continuity and institutional memory particularly where the WIO-LaB project as a whole, or a demonstration project, had been strongly identified with an individual.”

One of the main outputs from the WIO-LaB project was the development of a Western Indian Ocean

⁸⁷ Ibid 28

⁸⁸ UNEP Evaluation Office (2010)

⁸⁹ Ibid 77, Page 12

Strategic Action Programme (WIO-SAP). The WIO-SAP was adopted at the COP6 meeting in 2010 as the plan to reduce the impacts of land-based sources and activities in the Western Indian Ocean region. At the conclusion of the WIO-LaB project in 2010, the Contracting Parties requested the Secretariat to follow up on the recommendations in the WIO-SAP through new funding opportunities and projects.⁹⁰ The WIO-SAP identified four key priority objectives to achieve: critical coastal habitats protected, restored, and managed for sustainable use by 2035; water quality meets international standards by 2035; river flows are wisely and sustainably managed by 2035; and stakeholders collaborate effectively at the regional level in addressing transboundary challenges by 2015.⁹¹ This project builds on previous projects implemented by the Nairobi Convention, including the GEF-funded WIO-LaB, SIDA supported project UNEP Africa Marine and Coastal Programme, and the UNEP-African Economic Commission project on the LBSA Protocol.⁹² The work being accomplished through the implementation of the WIO-SAP complements the Nairobi Convention protocols, addressing key issues such as conservation and restoration of coastal and marine ecosystems, integrated coastal zone management (ICZM), management of land-based sources of pollution, and strengthening the regional legal and policy frameworks.

The adoption of the Protocol on Land-based Sources and Activities (LBSA) is an important step to harmonizing regional and national management in the Western Indian Ocean. National legislation in member States has historically been fragmented by sectoral approaches to governance and legislation.⁹³ The emergence of regional environmental degradation and the need for better conservation efforts has triggered the development of modern and integrated legal frameworks in Kenya, Madagascar, Mauritius, and Mozambique.⁹⁴ However, additional effort is needed to have all member States establish National Plans of Action (NPAs) and National Environmental Management (NEM) Plans in place.

e. Integrated Coastal Zone Management

Integrated Coastal Zone Management (ICZM) has gradually been accepted in the Western Indian Ocean region, especially since the 1993 Arusha and 1996 Seychelles Policy Conferences on ICZM in Eastern Africa.⁹⁵ Within the region there has been the establishment of national ICZM frameworks, policies, strategies, and plans, along with some implementation of ICZM projects. For example, the development of the National Integrated Coastal Environment Management Strategy for Tanzania in 1997 became one of the most important

⁹⁰ GEF (2013b)

⁹¹ Ibid 61, Pages 1-5

⁹² Ibid 29, Page 69

⁹³ UNEP/Nairobi Convention/WIOMSA (2009)

⁹⁴ Ibid 80, Page 72

⁹⁵ UNEP (2012b); McLean (2010)

events in the development of integrated coastal management (ICM) in Tanzania.⁹⁶ The White Paper for Sustainable Coastal Development in South Africa approved in 1999 signified a shift in South Africa about achieving sustainable development through ICM.⁹⁷ Mozambique has also recently adopted policies on ICZM.⁹⁸ Other countries, such as Comoros, Madagascar, and Mauritius, have not yet implemented national ICZM programs, but are within the final stages of development and discussion in national governments.⁹⁹

In 2006, the Regional Program for the Sustainable Management of the Coastal Zones of the Countries of the Indian Ocean Project (ReCoMAP) was initiated to strengthen the regional ICZM capacity in the Southwestern Indian Ocean countries. Implemented by the Indian Ocean Commission (IOC) and the European Union, the program's purpose was to ensure sustainable regional ICZM, which has been ineffective in some places due to the large strains on marine resources.¹⁰⁰ The program assisted in the development of national ICZM strategies in Comoros, Seychelles, Mauritius, Madagascar, Kenya, and Somalia. To further strengthen ICZM in the region, the project encouraged the development of a Protocol under the Nairobi Convention. The Secretariat interviewee emphasized the importance of this program in developing a Protocol with the Nairobi Convention:

“The (regional) ICZM process began at the Indian Ocean Commission (IOC) ReCoMAP. This program provided the technical portion of an ICZM plan (for the region). The project generated interest on the national level; however, in order to be a regional protocol, it must go through the Convention,” (Secretariat, Nairobi Convention).

In essence, ReCoMAP's most important outcome was generating the consensus needed among the Convention Parties to begin the process of developing a regional framework regarding ICZM.¹⁰¹ At COP6 in 2010, Contracting Parties adopted the decision to strengthen ICZM in the Western Indian Ocean through a Protocol. Since then, there have been seven meetings of the Legal and Technical Working Group to discuss the principles and implications of ICZM. Contracting Parties decided at COP7 in 2012 that the process should be taken to the next level in developing a draft Protocol. It is expected that the draft Protocol will be discussed and adopted at COP8 at the end of 2014.

⁹⁶ McLean (2010)

⁹⁷ Ibid 60, Page 147 UNEP/Nairobi Convention (2009a)

⁹⁸ Ibid 80 Page viii

⁹⁹ Ibid 54, Page 99

¹⁰⁰ UNEP (2012d)

¹⁰¹ UNEP (2012b)

Integrated Coastal Zone Management (ICZM) is not a new concept in the Western Indian Ocean. With fully implemented programs in South Africa and Tanzania, and ICZM policies in development in the other member States, the region has seen a significant amount of focus on integrated coastal management. However, more effort is needed in increasing the capacity of local users and managers of the benefits of ICZM in the Western Indian Ocean.¹⁰²

2. Summary

| Variable | Definition of Variable | Indicators being Evaluated | Evaluation of Indicator |
|----------|---|---|---|
| Outcomes | Changes in how governments and sub-state actors act | Implementing mechanisms in place and how are they working | <ul style="list-style-type: none"> • Three protocols are being implemented <ul style="list-style-type: none"> ○ Marine pollution emergencies ○ Protection of biodiversity ○ Land-based sources and activities (LBSA) • One protocol is in development <ul style="list-style-type: none"> ○ Integrated coastal zone management (ICZM) • Implementation through Work Program • Marginal success in translating regional principles into national policies and legislation • “Gateway” environmental policy framework for region • Platform for inter-regional cooperation and collaboration |
| | | Programs and projects in place | <ul style="list-style-type: none"> • Coordinated by Work Programme • Projects and programs adequately address principles and goals stated in Convention • Project implementation limited by financial constraints • Partnerships with civil society and have increased the impact and effectiveness of project • Further enhancement of civil society partnerships needed • Impact of projects and programs dependent on size and scope |

The effects of the implementation of the Nairobi Convention can be seen throughout the policies and programs implemented throughout the region in the past twenty years. Before the establishment of the Eastern Africa Program, there was no institution in place for regional stakeholders to initiate a dialogue on the environmental problems of the Western Indian Ocean. The Nairobi Convention has evolved into an open forum for the WIO region to discuss the marine and coastal issues, policies, and impacts. The level of participation has developed a common regional awareness of issues in the marine and coastal environment, putting all stakeholders in the region at the same level of understanding and collectively discussing these issues. This point was discussed by the Secretariat informant as the primary strength of the Convention:

¹⁰² Francis and Torell (2004)

“The main strength of the Nairobi Convention is its ability of raising the profile of marine issues to the policymaking level, as well as raising the profile of the marine area region-wide,” (Secretariat, Nairobi Convention).

The role of the Convention as the WIO region representative has produced relationships with the international bodies, such as the New Partnership for Africa’s Development (NEPAD), the African Ministerial Conference on the Environment (AMCEN), the African Ministers’ Council on Water (AMCOW), and the African Union (AU), participation in international processes, such as the Global Programme of Action on the Protection of the Marine Environment (GPA), and collaborations with intergovernmental organizations, such as the Indian Ocean Commission (IOC).

The strong participation of regional stakeholders in the Convention, along with the shared understanding of the WIO marine and coastal issues makes the Nairobi Convention an ideal platform to serve as the common environmental voice of the region for cooperation and collaboration with other international bodies. As emphasized by one informant:

“The Nairobi Convention serves as the gateway of the WIO in environment to the region. This gateway is used by the AU and other international bodies,” (civil society, international NGO).

Within the region, the Nairobi Convention has become the primary platform for regional cooperation and action regarding the marine and coastal environment. The Convention provides the opportunity for the countries to come together to discuss current and emerging environmental issues and threats in the WIO region. Before the establishment of the Eastern Africa Program, there was no institution in place for regional stakeholders to initiate a dialogue on the environmental problems of the region; the Convention has created a platform that all key stakeholders in the region can participate in. All stakeholders have an equal voice when participating in the Convention, which has initiated an open participatory process to discuss the future of the marine environment in the region. As put by one informant:

“(The Convention has) succeeded to put country’s awareness and understanding (from the ministry of environment) of environmental issues at the same level; (it has) put key stakeholders around a table to discuss issues of environment,” (civil society, global NGO).

The interaction of civil society with the Nairobi Convention has grown in the two decades since the adoption of the Convention. Only three organizations, the Indian Ocean Commission (IOC), WWF, and IUCN,

represented civil society at COP1 in 1997. At COP7 in 2012, almost two-dozen NGOs and institutions attended and were active participants in the science for policy workshop, policy makers and experts meeting, and WIO-Consortium meeting.

“Now (the role of civil society) is quite strong, and in particular through some key organizations as conduits (presently, WIOMSA, and in the past also IUCN and WWF). Increasingly, the WIO-C should play this role. The invitation to civil society to be part of Convention processes has long been in place, but without a strong role for civil society until recently,” (civil society, regional NGO).

At COP5 in 2007, in an effort to collaborate on coastal and marine activities in the region, the Western Indian Ocean Consortium (known as WIO-C) was established (the partners include the International Union for the Conservation of Nature (IUCN), the World Wildlife Fund for Nature (WWF), the Wildlife Conservation Society (WCS), the Western Indian Ocean Marine Science Association (WIOMSA), Coastal Oceans Research and Development in the Indian Ocean (CORDIO), the Nairobi Convention, the Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO), New Partnership for Africa’s Development (NEPAD), and the Indian Ocean Commission (COI)). This partnership serves to provide decision support, information sharing, resource mobilization, and development of collaborative programs.¹⁰³ According to the Secretariat informant the Nairobi Convention Secretariat and WIO-C objectives are similar, and therefore projects executed by each respective party are mutually beneficial. In addition, WIO-C is extremely active during COP meetings, Convention projects, and establishing capacity development in the region alongside the Convention. There are three Memoranda of Understanding (MOUs) with the World Wildlife Fund (WWF), International Union for the Conservation of Nature (IUCN), and the Western Indian Ocean Marine Science Association (WIOMSA). These partnerships between WIOMSA, WWF, and IUCN have increased the technical capacity of the Nairobi Convention for the operationalization of projects, and are considered crucial to understanding the linkages between the different issues of sustainable development in the WIO region.¹⁰⁴

The Nairobi Convention has taken an important step in raising the capacity of the region through the important partnership it has formed with the Western Indian Ocean Marine Science Association (WIOMSA). WIOMSA was established approximately in 1994, as a forum to strengthen regional cooperation in the fields of marine research and monitoring in the Western Indian Ocean region.¹⁰⁵ Today, WIOMSA has become the foremost organization promoting the educational, scientific, and technological development of all aspects of

¹⁰³ Ibid 3, Page 14

¹⁰⁴ Nairobi Convention (2011a)

¹⁰⁵ WIOMSA (2009)

marine sciences throughout the region of the Western Indian Ocean.¹⁰⁶ WIOMSA's role within the Convention involves developing background technical and policy documents, training and education programs, and providing research support as requested.¹⁰⁷ A mutually beneficial relationship has developed between WIOMSA and the Nairobi Convention, as stated by one informant:

“The Nairobi Convention framework was instrumental in the design and conceptualization of WIOMA, and has supported it- and after some years, WIOMSA has clearly become a major support to the Convention,” (civil society, regional NGO).

WIOMSA has been a major actor in advancing regional capacity to conduct scientific research and the sharing of technical information through the Marine Research Grant (MARG) and Marine and Coastal Science for Management (MAMSA) program. The Nairobi Convention and WIOMSA are the founding members of the Forum of Heads of Academic/Research Institutions in the Western Indian Ocean (FARI), which was established as a directive from COP4 in 2004 to create an avenue for connecting national research and academic institutions with the policymaking occurring at the regional level, including the Convention.¹⁰⁸ FARI has addressed several encumbrances in the region, including increasing the visibility of regional institutions and their work, the level of information sharing and exchange in the region, and the participation of institutions in the Convention.¹⁰⁹

While the role of civil society as a key actor of the Nairobi Convention has been established, the level of interaction between the two actors is dependent on the size of the organization. The WIO- Consortium has only in the recent past established a connection between some of the larger civil society actors and in the region with the Convention, but isn't clear on the level of interaction with regionally-based organizations:

“There is no benefit to national NGOs to participate with the Nairobi Convention, so they stop interacting at the regional level. Since there has been little to no ability of NGOs to participate in the Convention process, NGOs are frustrated and don't know what is going on and don't care somewhat,” (civil society, regional NGO).

The level of interaction with more regionally based organizations seems to be highly dependent on its size and scope of work. As a regional framework, the Nairobi Convention addresses issues and threats affecting the region as a whole. Many of the issues targeted by the larger NGOs in the WIO focus on impacts on the

¹⁰⁶ WIOMSA (2010a)

¹⁰⁷ WIOMSA (2012)

¹⁰⁸ WIOMSA (2010b)

¹⁰⁹ Ibid 66

regional level through multiple national pilot projects. Therefore, local and more small-scale issues that smaller organizations focus on are not specifically addressed by the Convention.

“In the case of localized NGOs, they are not coordinated- the problem is scale- why should an intergovernmental body engage with local groups, and how could it possibly do it credibly when there are thousands? There needs to be a representative process, such as associations of localized groups that represent their interests. Similarly, the big NGOs represent their own interests really, not those of small local ones,” (civil society, regional NGO).

One solution to address the issue of underrepresentation of smaller civil society organizations would be for national governments to have a strong connection with local interest groups and organizations. National governments have the ability to focus on more localized issues of their constituents, and have a strong influential voice within the Nairobi Convention through the National Focal Points. From the national government perspective, there are programs and projects currently being implemented that have local stakeholder input and participation:

“There is close collaboration with civil society. For example, (the country) has a national Integrated Coastal Zone Management Committee, which meets on a quarterly basis to address coastal zone management issues. This committee has membership from government institutions, private sector, and civil society,” (national government, coastal State).

The Western Indian Ocean is one of the fastest growing economic regions in the world. High diversity in social, political, economic, and environmental systems exists in the region, yet it is still underestimated as a player in world geopolitics.¹¹⁰ Since the formation of the Nairobi Convention, the WIO region has seen a large increase in the population, coupled with rapid urbanization and coastal development in the 15,000 kilometers of coastline located in the region.¹¹¹ Contracting Parties of the Convention are in various stages of economic, political, and social development, making it a difficult task to implement the activities and initiatives of the Convention at the same level. For example, Somalia has seen in political unrest since the collapse of the authoritarian socialist government in the 1990s.¹¹² While Somalia is Member State of the Nairobi Convention, it has not been able to regularly contribute to the East African Trust Fund and doesn't participate in the regional

¹¹⁰ Michael and Sticklor (2012)

¹¹¹ UNEP/EAF (2012e)

¹¹² CIA (2014)

projects under the Programme of Work. Other Contracting Parties, such as the island of La Réunion (France) and South Africa have much more stable governments and economies, and have been able to fully participate in Convention activities and contribute financially to the Trust Fund.

In summary, the Nairobi Convention has produced some visible behavioral changes in the decision making of the Western Indian Ocean region. On a national scale, the Nairobi Convention has had some visible impact on national policies and legislation related to environmental conservation and management. For example, all Member States have developed (and most have implemented) national contingency plans for oil spills, and have developed some form of policy framework for the establishment of protected areas. However, more effort is still needed to operationalize the Protocols and provisions of the Nairobi Convention within national and regional policies. The Convention has become a platform for regional cooperation and collaboration to protect the Western Indian Ocean. Overarching themes in conservation, management, and sustainable development of the coastal and marine environment defined by the protocols and Action Plan have made the Convention an attractive platform for civil society partnerships. Through the establishment of the WIO-Consortium, there has been increased involvement of partners and donors in the coordination and implementation of projects and activities coordinated by the Work Programme. The variability of financial contributions from member States has limited the scope of activities conducted; implementation of the Work Programme is highly dependent on donor and partner contributions. These behavioral changes directly affect the level of environmental impact in the Western Indian Ocean region.

C. Environmental Changes in the Western Indian Ocean

| Variable | Definition of Variable | Indicators being Evaluated |
|----------|----------------------------------|---|
| Impacts | Environmental and social changes | <ul style="list-style-type: none"> • Land-based sources of pollution (Sewage, Nutrients, Litter, Hydrocarbons, Persistent Organic Pollutants, Sediment Mobilization, Physical Alteration and Destruction of Habitats) • Protection of marine biodiversity |

This section discusses the environmental changes that have occurred in the Western Indian Ocean region since the adoption of the Nairobi Convention. Indicators and findings discussed are from the UN Environment Programme (UNEP) / UN Global Programme of Action for the Protection of the Marine Environment from

Land-Based Activities (GPA) “The State of the Marine Environment: A Regional Assessment”¹¹³ and the UNEP/GEF Global International Waters Assessment (GIWA) of the Indian Ocean Islands.¹¹⁴ The assessment examines environmental impacts of land-based sources of pollution and the protection of marine biodiversity over a ten-year period (1996-2006) in the Eastern and Southern Africa regions.

1. Land-based sources of pollution

The rapid development of coastal urban hotspots along the Western Indian Ocean has brought about significant growth in the coastal population. Within the past fifteen years, environmental degradation caused by sewage in urban hotspots has increased as more people reside near the coast. For example, in South Africa while the rate of sewage discharged to offshore areas was minimal, disposal to estuaries and the surf zone has practically doubled and tripled, respectively.¹¹⁵ The large growth in coastal urban areas has also increased the level of accumulation of solid waste (litter). In Mauritius, solid waste production increased by thirteen percent between 1992 and 1995.¹¹⁶ While quantitative data is generally not available for assessing the rate of change in solid waste impacts on the environment, there is a large collection of photographic evidence that has shown the levels of litter in coastal areas increasing over time.¹¹⁷ Further development of wastewater treatment infrastructure is needed to meet the demands of an increasing coastal population.

Table 5. Estimated annual urban population connected to sewerage systems on the coasts of East African countries (as adapted from UNEP 1982, 1984, 1990, 1998, and 2001, Gove 1995, Linden and Lundin 1996, SID 2004)¹¹⁸

| Country | Year | Coastal Population | Coastal Urban Population | Percent coastal urban population connected to sewerage system | Percent coastal population connected to sewerage system | Urban population connected to sewerage system |
|----------------|-------------|---------------------------|---------------------------------|--|--|--|
| Somalia | 1980 | 1,000,000 | 565,000 | 56.5 | 10 | 55,660 |
| Kenya | 1980 | 1,340,000 | 460,000 | 33.6 | 15 | 69,000 |
| | 1989 | 1,829,191 | 661,753 | 36.2 | 20 | 132,350 |
| | 1999 | 2,487,265 | 1,008,092 | 40.5 | 20 | 201,618 |
| Tanzania | 1980 | 3,147,344 | 890,000 | 28.3 | 13 | 115,700 |
| | 1988 | 4,818,545 | 1,735,558 | 36.0 | 15 | 260,334 |
| | 2000 | 6,738,143 | 3,099,735 | 38.6 | 15 | 390,138 |
| Mozambique | 1980 | 5,458,500 | 1,220,000 | 22 | 13 | 158,000 |

¹¹³ See UNEP/GPA (2006a & 2006b)

¹¹⁴ See UNEP (2004)

¹¹⁵ UNEP/GPA (2006a)

¹¹⁶ UNEP (2004)

¹¹⁷ Ibid 109, Page 38

¹¹⁸ UNEP/GPA (2006b)

| | | | | | | |
|--|------|-----------|-----------|----|----|---------|
| | 1999 | 8,650,000 | 3,546,500 | 41 | 15 | 531,975 |
|--|------|-----------|-----------|----|----|---------|

Agricultural byproducts (fertilizers and pesticides), industrial wastewater, and sewage (solid waste and municipal waste) are the three main sources of nutrients discharged into the marine and coastal environment of the Western Indian Ocean. Within the region, a large amount of effort has been put into completing nutrient analysis in the last fifteen years, especially in observing the distribution and magnitude of nutrient distribution in watersheds.¹¹⁹ These studies have shown that the overall discharge level of nutrients in the marine environment is increasing; the example of South Africa is shown in Table 6. Increasing nutrient discharge has caused eutrophication and microbiological contamination in coastal areas. For example, results from a survey conducted in Mauritius show that high nutrient levels in the coastal zone in 1996 may have caused the generation of six red tides in the northern part of the island.¹²⁰ In Madagascar, the increased nutrient levels have impacted the health of marine biodiversity in the region, including sharks, sardines, molluscs, and turtles.¹²¹ Nutrient pollution will cause larger impacts in the future as long as the agricultural and industrial sectors continue to grow.

Table 6. Changes in estimated nutrient loads (mainly inorganic nitrogen and phosphate) entering the marine environment from land-based activities over 1996-2006 in South Africa (as adapted from CSIR 1991 and RSA DWAF 2004d)¹²²

| Type | Estimated nutrient load (tonnes/year) | |
|---|--|---------------------------------|
| | 1991 | 2004 |
| Sewage to offshore (preliminary treatment) | 3.800 | 4.200 |
| Sewage to surf zone and estuaries (mainly secondary treatment) | 650 | 1.950 |
| Stormwater runoff (main urban areas contribute 780) | 980 | Probably higher, but no data |
| Industrial discharges (mainly fish processing industries on west coast) | 2.900 | No data |
| Rivers (using the following as examples): | | |
| -Orange (west coast) (RSA DWAF 2003a) | No data | 150 |
| -Breede (south coast) (RSA DWAF 2004b) | No data | 250 |
| -Thukela (east coast) (RSA DWAF 2004c) | 790 | 860 |

Quantitative data on Persistent Organic Pollutants (POPs) from agricultural and industrial runoff is not available in the Western Indian Ocean region due to the large financial sources needed to conduct routine

¹¹⁹ Ibid 111, Page 55

¹²⁰ Ibid 108, Page 33

¹²¹ Ibid 108, Page 33

¹²² Ibid 101, Page 49

analysis.¹²³ There is evidence that the re-introduction of toxic pesticides such as DDT could potentially cause large amounts of POPs to enter the marine environment, especially during the rainy season when leaching occurs.¹²⁴

Sediment mobilization has caused erosion and accretion problems in the marine areas of the Western Indian Ocean. The damming of rivers has drastically decreased the level of nutrients discharged out to sea, resulting in large-scale coastal erosion. The dams located on the Tana River in Kenya have reduced the level of sediment discharge into the ocean from ten million tonnes in 1967 to about five million tonnes in 2002, causing large-scale coastal erosion in Ungwana Bay.¹²⁵ Sediment transport from agricultural activities has brought about cases of beach accretion in the region. As of 2000, the Zambezi Delta has seen a coastal accretion rate of one meter per year since the 1960s.¹²⁶

There is a high risk of introduction of hydrocarbons within the Western Indian Ocean due to the major shipping routes in the region. In the islands region, while there have been no reports of major oils spills in the islands region, annual reports are submitted on the occurrence of tar balls washing ashore in the area.¹²⁷ There is inadequate data available on the levels of hydrocarbons in the marine coastal and areas. The majority of information available evaluates the amount of oil spilled in harbors. With the development of offshore oil and gas in the Eastern Africa region, monitoring and evaluation efforts need to be improved in order to protect marine ecosystems.

Critical coastal and marine habitats in Western Indian Ocean countries are becoming increasingly threatened by anthropogenic activities. The urbanization of the coast has introduced the impacts of mining, tourism, fishing, shipping, and farming to the ecosystem. The impacts from these industries coupled with the effects of climate change are causing widespread alteration and degradation of coastal and marine biodiversity that provide crucial ecosystem goods and services to a large portion of the regional population.

2. Protection of Marine Biodiversity

¹²³ Ibid 108, Page 35

¹²⁴ Ibid 108, Page 35; Ibid 111, Page 54

¹²⁵ Ibid 111, Page 56

¹²⁶ Ibid 111, Page 57

¹²⁷ Ibid 108, Page 35

A significant amount of the area in the Western Indian Ocean covered by marine protected areas (MPAs) in the Western Indian Ocean has been established since the 1985 adoption of the Nairobi Convention. Between 1990 and 2000, 99.9% and 83.8% of Tanzanian and Mozambican MPAs were created, respectively.¹²⁸ However, while the establishment of MPAs in the region has decreased or stalled the rate of degradation of mangroves, coral reefs, seagrass beds, and wetlands, ecosystems are still threatened by poor water quality in the region.¹²⁹

3. Summary

| Variable | Definition of Variable | Indicators being Evaluated | Evaluation of Indicators |
|----------|------------------------|---|--|
| Impacts | Environmental changes | Land-based sources of pollution (Sewage, Nutrients, Litter, Hydrocarbons, Persistent Organic Pollutants, Sediment Mobilization, Physical Alteration and Destruction of Habitats), Protection of marine biodiversity | Inadequate temporal and spatial data available for complete assessment of environmental change. <i>From available information:</i> Increase in the amount of land-based sources of pollution. Anthropogenic activities primary source of impact, with crosscutting issue of climate change. Incremental improvement in the protection of marine biodiversity through establishment of MPAs; efficacy threatened by water quality. |

The marine and coastal ecosystems of the Western Indian Ocean are directly affected by anthropogenic activities. Coastal development in the region has produced, among other things, land-based sources of pollution, and threatens the survival of marine biodiversity. The Nairobi Convention has generated new regional and national policies aimed at reducing the impact of human activity on the environment. However, it appears that the impact of the Convention on the environment has been relatively minor. In the twenty years that have passed since the Convention came into force, levels of pollution have increased, the rate of monitoring and evaluation of the spatial and temporal environmental changes has not improved, the population has increased, and the positive results from the establishment of marine protected areas is diminished by the impacts coastal development. One positive environmental impact has been observed with the 2011 M/V Angel 1 incident in Mauritius. The government of Mauritius, with the aid of Sri Lanka and India, was able to successfully contain the oil spilled caused by the grounding of the cargo boat M/V Angel 1, preventing any substantial damage to the coral reef.¹³⁰

¹²⁸ Ibid 111, Page 57

¹²⁹ Ibid 111, Page 62

¹³⁰ GEF (2013a)

It is important to note that the full impact of the Nairobi Convention cannot be determined by this research. The last assessment compiled on the changes in the state of the marine environment in the region was completed 2006 by the Global Programme of Action (GPA). The assessment pointed out that there are major gaps in the data reported due to a lack of funds and capacity to conduct routine evaluation and monitoring in the region. The environmental impacts caused by the implementation of Convention activities is also not reported by national governments. Any conclusions reached in this paper are therefore based on existing data and generalized.

The completion of the Western Indian Ocean Transboundary Diagnostic Analysis and the implementation of its findings through the WIO-SAP have established baseline points and indicators of success to measure improvements in water quality, coastal habitat protection, watershed management, and regional stakeholder collaboration on short, medium, and long-time scales. As well, there are indicators for observing the outcomes of implementation of Nairobi Convention activities in national policymaking. As the results of the implementation of the WIO-SAP become apparent, the indicators can be utilized to determine the direct impact of the Nairobi Convention on the regional environment.

IV. DISCUSSION

The final section will discuss the overall analysis of the Nairobi Convention, detailing what the next steps that could be taken in the future. The section is divided into four parts: the first part details the overall effectiveness of the Nairobi Convention. The second part highlights the lessons learned of the Nairobi Convention, which will then be used to inform the recommendations being made. The third part discusses the implications of the research to the current policy environment in the WIO, and the final part discusses possible avenues for further research.

A. The Effectiveness of the Nairobi Convention

A summary of the variables determining the effectiveness of the Nairobi Convention can be found in Table 7. Each variable is broken down by its indicators followed by a description of the evaluation.

Table 7. Summary of variables tested

| Variable | Definition of Variable | Indicators being Evaluated | Evaluation of Indicator |
|-----------------|-------------------------------|-----------------------------------|--------------------------------|
|-----------------|-------------------------------|-----------------------------------|--------------------------------|

| | | | |
|----------|---|---|---|
| Outputs | Laws, policies, and regulations that States adopt to implement an International Environmental Agreements and transform from international to national law | Problem Identification | <ul style="list-style-type: none"> ● Problems have been identified in region: <ul style="list-style-type: none"> ○ Protection of marine ecosystems and biodiversity ○ Contingency planning for oil emergencies ○ Coastal erosion ○ Poor environmental knowledge ○ Inadequate environmental monitoring ○ Rapid coastal development |
| | | Response to Problems | <ul style="list-style-type: none"> ● Adoption of East African Action Plan ● Adoption and Ratification of Nairobi Convention ● Adoption of the Amended Nairobi Convention in 2010 |
| | | Goals | <ul style="list-style-type: none"> ● Goals are agreed upon: <ul style="list-style-type: none"> ○ Regional framework to assist in the coordination of programs and activities to protect the marine environment ○ Establishment of forum for inter-governmental discussions ○ Promotion of sharing information and experiences |
| | | Principles | <ul style="list-style-type: none"> ● Principles are identified in the Convention text: <ul style="list-style-type: none"> ○ Address marine and land-based sources of transboundary pollution ○ Protection of marine biodiversity ○ Capacity development ○ Regional cooperation |
| | | Ratification | <ul style="list-style-type: none"> ● All Contracting States have ratified the 1985 Convention and two Protocols ● Eight out of ten Contracting Parties have signed 2010 Amended Convention and LBSA protocol (Madagascar and South Africa have not signed) ● Amended Convention is not in force |
| | | Institutional Arrangement | <ul style="list-style-type: none"> ● Centralized Secretariat ● Non-functioning Regional Coordinating Unit (RCU) ● National Focal Points in place |
| | | Financial Terms | <ul style="list-style-type: none"> ● East African Trust Fund established ● Inconsistent contributions from Contracting Parties ● Bilateral and multilateral donors are primary source of funding |
| Outcomes | Changes in the behavior of governments and sub-state actors | Implementing mechanisms in place and how are they working | <ul style="list-style-type: none"> ● Three protocols are being implemented: <ul style="list-style-type: none"> ○ Marine pollution emergencies <ul style="list-style-type: none"> ▪ Development and implementation of national and regional contingency plans ▪ Development of regional monitoring center (not currently active) ○ Protection of biodiversity <ul style="list-style-type: none"> ▪ Creation of MPAs in nine out of ten member States' jurisdiction ▪ Less than 10% of each member State marine jurisdiction is protected |

| | | | |
|---------|----------------------------------|---|---|
| | | | <ul style="list-style-type: none"> ▪ No specific national legislation created for establishment of MPAs ▪ Very limited monitoring efforts ○ Land-based sources and activities (LBSA) <ul style="list-style-type: none"> ▪ Completion of regional TDA ▪ Currently implementing regional SAP ▪ National governance is predominantly sector-based; recent trend towards integrated legal frameworks ● One protocol is in development <ul style="list-style-type: none"> ○ Integrated coastal zone management (ICZM) <ul style="list-style-type: none"> ▪ Established national programs in three out of ten member States (South Africa, Mozambique, and Tanzania) ▪ Development of national programs in Comoros, Madagascar, Kenya, and Mauritius ● Implementation through Work Program <ul style="list-style-type: none"> ○ Guided by East African Action Plan ○ New plan adopted every two to four years ○ Direction for implementation of projects and activities ● Marginal success in translating regional principles into national policies and legislation ● “Gateway” environmental policy framework for region ● Platform for inter-regional cooperation and collaboration |
| | | Programs and projects in place | <ul style="list-style-type: none"> ● Coordinated by Work Programme ● Projects and programs adequately address principles and goals stated in Convention ● Project implementation limited by financial constraints ● Partnerships with civil society and have increased the impact and effectiveness of project ● Further enhancement of civil society partnerships needed <ul style="list-style-type: none"> ○ Local level impact of implementation unclear ○ Relationship with smaller, national NGOs minimal ● Impact of projects and programs dependent on size and scope |
| Impacts | Changes in environmental quality | Land-based sources of pollution (Sewage, Nutrients, Litter, Hydrocarbons, Persistent Organic Pollutants, Sediment Mobilization, Physical Alteration and | <ul style="list-style-type: none"> ● Inadequate temporal and spatial data available for complete assessment of environmental change. <ul style="list-style-type: none"> ○ Only one temporal/spatial assessment conducted (2006 GPA regional assessment) ○ Gaps in data for POPs, hydrocarbons ● Implementation of WIO-SAP provides baseline data and indicators to monitor short, medium, and long-term change <p><i>From available information:</i></p> <ul style="list-style-type: none"> ● Increase in the amount of land-based sources of pollution <ul style="list-style-type: none"> ○ Sewage disposal to estuaries has doubled ○ Sewage disposal to surf zone has tripled |

| | | | |
|--|--|---|---|
| | | Destruction of Habitats), Protection of marine biodiversity | <ul style="list-style-type: none"> ○ Solid waste increase of thirteen percent in three years (1992-1995) in Mauritius ○ Nutrient discharge causing eutrophication and microbiological contamination <ul style="list-style-type: none"> ▪ Nutrient discharge linked to red tides in Mauritius ▪ Impacts on marine species in Madagascar ○ Sediment mobilization causes various impacts <ul style="list-style-type: none"> ▪ Kenya Tana River dams cause large-scale coastal erosion in Ungwana Bay (five million tonnes decrease in sediment mobilized between 1967 and 2002) ▪ Zambezi Delta experiencing beach accretion one meter per year since 1960s ● Anthropogenic activities primary source of impact, with crosscutting issue of climate change ● Incremental improvement in the protection of marine biodiversity through establishment of MPAs <ul style="list-style-type: none"> ○ 99.9% of Tanzanian and 83.8% of Mozambican MPAs established between 1990 and 2000 ○ Efficacy of MPAs threatened by worsening water quality. |
|--|--|---|---|

The countries of the Western Indian Ocean region have successfully developed a regional framework to conserve, protect, and manage the marine environment. The Nairobi Convention sets out clear goals and principles in response to the perceived problems identified in the region. The scope of the Convention has periodically increased to address current and emerging issues. The original Convention and Protocols on Combatting Pollution Emergencies and the Protection of Flora and Fauna received 100 percent ratification, emphasizing the confidence of Contracting Parties in the Convention to represent and address the coastal and marine environment on a national, regional, and international level. This confidence is the result of the revitalization process that occurred in the late nineties.¹³¹ This resulting effect is the increasing number of organizations and multilateral institutions working in collaboration with the Convention, such as with the establishment and involvement of the Western Indian Ocean Consortium in Convention processes and the MOUs signed with WIOMSA, IUCN, and WWF. The strong levels of partnership established among the members and partners have made the Convention the “gateway” Western Indian Ocean environmental framework for other international institutions and organizations.

¹³¹ Francis and Ngoile (2000)

There have been challenges in establishing a stable institutional structure for the Convention. The failed operationalization of the Regional Coordinating Unit (RCU) has limited the impact the Convention could have in the Western Indian Ocean. The integrity and commitment of Secretariat staff, as well as the support of UNEP and Contracting Parties, has kept the Nairobi Convention functioning. The East African Trust Fund has sustained the functions of the Secretariat, but the inconsistency in Contracting Parties in fulfilling their financial obligations to the Fund has limited the number of projects and programs being implemented in the region to what can be funded through outside sources of aid. While the amount of money that is being contributed to the region is almost 300 million USD, only a third of that is going towards Convention-managed projects.

The impacts of Convention are dependent on the level of implementation of biennial Work Programmes. These plans coordinate the work of projects to fulfill the objectives and principles set out in each of the Convention Protocols in the Convention text. While the Convention has not achieved all of its objectives and principles, on-the-ground impacts at both the national and regional levels have been observed. In the Protocol examined in this analysis, the Protocol on Combatting Pollution Emergencies has been translated into national policymaking through the development and adoption of national oil spill contingency plans in most of the region, and through the efforts made by each country to increase the capacity to respond and prevent the incidence of pollution emergencies. As well, the process to develop and operationalize a regional coordination center (RCC), as well as a regional plan for pollution emergencies. On a regional level, the Nairobi Convention has acted as a conduit for regional coordination in addressing current and emerging issues and threats in the region. The 2010 adoption of an amended Nairobi Convention and a LBSA Protocol emphasizes that the regime has the ability to provide an up-to-date platform for stakeholders to initiate dialogues on the environmental problems of the region. In essence, the establishment of the Nairobi Convention in the region has created the impetus for many of ongoing processes in the Western Indian Ocean.¹³²

The direct temporal and spatial impacts of the Nairobi Convention on the Western Indian Ocean marine environment are not well known; the regional state of the environment is not adequately monitored and assessed. The expected impacts of the Convention were to reduce and prevent land and sea-based sources of pollution through the development of contingency plans and enhancement of regional response. As well, the Convention calls for the enhancement of efforts to protect critical biodiversity and ecosystems through the establishment of protected areas.

¹³² Ibid 131

However, based on the available data the Western Indian Ocean region has seen increased levels of environmental degradation in the past twenty years. High levels of urban development in coastal areas in the region have created a number of environmental “hotspots,” where inadequate municipal infrastructure has caused exponential increases in solid waste and sewage discharged into the ocean. Inappropriate agriculture operations, industrial discharge, and municipal wastes continue to cause incidents of eutrophication and microbiological contamination near populated areas, endangering the health and safety of coastal ecosystems and biodiversity. The attempts to reduce the rate and spread of environmental degradation by establishing marine protected areas (MPAs) are counteracted by worsening water quality.

In comparing the actual and expected impacts, the following can be summarized:

- National oil spill contingency plans have been developed by Contracting Parties, but have not been totally adopted and integrated into national policymaking. It isn't apparent what environmental impacts these plans have made, as there have not been any major spills in the region besides the M/V Angel 1 incident in Mauritius. In that case, the national oil spill contingency plan was enacted, but the regional coordination center wasn't operational and therefore Mauritius had to rely on the assistance of India and Sri Lanka.
- Since the adoption of the Convention, there has been a significant increase in the number of MPAs in the region, but it isn't apparent if the Nairobi Convention was directly responsible for the establishment of the protected areas. The relative percentage of national waters protected by MPAs in the region is still low. While MPAs are assisting in protecting the critical marine and coastal biodiversity and ecosystems in the Western Indian Ocean, their efficacy is threatened by the increased amount of LBSA pollution caused by rapid urban coastal development in the region.

As stated earlier, the definition used to describe the effectiveness of the Nairobi Convention focuses on the behaviors of actors and the performance of institutions. The Nairobi Convention has been effective in identifying and addressing the environmental problems in the Western Indian Ocean region, establishing a platform for increased regional cooperation, and affecting the way national policymaking is being developed and implemented. However, it has not entirely achieved its objectives and principles set out in the Convention text and Protocols, and the impacts it has had on the regional environment are threatened by the rapid urbanization and development of the coastal area.

B. Observations and Lessons Learned from the Research

The main observations and lessons learned from the Nairobi Convention are highlighted below:

- There is too much dependence on Contracting Party contributions to the East Africa Trust Fund as a main source of funding for the Nairobi Convention. Contracting Parties have historically not met the annual pledges assigned by the Convention. The resulting consequence is that funding is not sufficiently adequate, nor dependable to finance the expanding scope of projects being developed and implemented under the Nairobi Convention.¹³³ This has been a recurring issue with the Convention; in the 2000 UNEP evaluation of the East African Action Plan, the dependence on the Trust Fund was listed as a “lesson learned.”¹³⁴
- The failure of the operationalization of the Regional Coordinating Unit (RCU) in Seychelles has placed much of the responsibility of administration and coordination of the Convention on the Secretariat. At COP7 in 2012, the Contracting Parties discussed how the institutional structure of the Convention could be strengthened.
- While there have been routine evaluations undertaken on Convention programs, there has only been one evaluation since the Convention came into force that looked specifically at the institutional structure of the Convention. In 2012, Bille and Rochette (2012) published an article on the potential modalities for strengthening the institutional structure of the Nairobi Convention, with the results of the paper presented to member States at COP7 in December 2012.¹³⁵
- The Secretariat has been an important actor in encouraging the openness of participation of member States, civil society, and IGOs in the Nairobi Convention. The increasing level of participation in meetings and activities and the continuing expansion of the Work Programme’s scope represents the competence and willpower of the Secretariat to keep the Convention functioning on limited resources.
- The role of civil society in Convention processes has increased over the past decade, especially since the establishment of the WIO-Consortium. Much of the funding for Convention programs and activities comes from non-governmental and intergovernmental organizations.
- With the 2010 amendment of the Convention text and addition of the land-based sources and activities of pollution (LBSA) Protocol, along with the development of an integrated coastal zone management (ICZM) Protocol, and the advancement of a new Action Strategy, the Convention has been able to address some of the current issues in the regional marine and coastal environment. However, there are emerging issues, such as the development of offshore oil and gas that have yet to be adequately addressed by the Convention.

¹³³ UNEP/EAF (2012e)

¹³⁴ UNEP (2001)

¹³⁵ See Bille and Rochette (2012); UNEP/EAF (2012f)

- There is very little analysis available on the effects of the Convention at the national policy level. There is no mechanism in place to determine whether the processes of the Convention are being translated into national policies by member States.

Based on the observations made during the analysis, there are three lessons to be learned from the Nairobi Convention:

1. Consistent with other intergovernmental organizations, the success of the organization is dependent on the financial mechanism, as is true for the Nairobi Convention.

The East African Trust Fund has been depended on to sustain the operation of the Secretariat, limiting the scope of work and activities to be conducted in the region. In Francis and Ngoile (2000), recommendations were made in involving more financially stable Parties to join the Convention in order to increase the Trust Fund. While Contracting Parties such as South Africa has since acceded to the Convention, there is still a major disproportion of funds being utilized the region for Nairobi Convention activities. Major projects executed by the Convention are highly dependent on the interests and level of funding offered by international organizations and institutions.

2. The institutional arrangement of the Convention should be evolving with the Convention's programs and activities.

While the Convention has been in the process of addressing current and emerging issues and threats, the institutional structure has changed little since the relocation of the Secretariat to Nairobi, Kenya. At COP7 in 2012, a working paper was circulated on the revision of the institutional arrangement of the Convention to focus more on Regional Activity Centers (RACs) to encourage a structure more conducive to funneling targeted expertise and funding into the region for each Protocol.

3. The Convention does not have a mechanism to assess national impact of implementation, even though it has been previously discussed.

In Francis and Ngoile (2000), one of the recommendations made was to conduct periodic performance assessments on the implementation of projects, including the national impacts of implementation. Now, although there are performance assessments made by the institutions and organizations funding projects, reports do not focus on how the actions and activities are related to the Nairobi Convention.

C. Recommendations

Based on the observations and lessons learned from the Nairobi Convention highlighted in the previous section, the following recommendations can be made.

1. Establish Regional Activity Centers (RACs)

Regional Activity Centers are one type of institutional arrangement utilized successfully by Regional Seas Programs, such as the Mediterranean and the Black Sea (with six RACs each), the Caribbean and the Northwest Pacific (with four RACs each).¹³⁶ RACs provide assistance to States to implement regional agreements through the provision of data, strengthen regional cooperation in a specific interest (usually determined by the Protocol they address), and provide legal and technical assistance to implement the Convention and Protocols.¹³⁷ The RAC could be hosted by a regional academic, technical, or non-government organization and supported by funding from a national government. By establishing RACs for each of the Protocols, this will redefine the institutional structure of the Convention. The Secretariat would manage the legal, diplomatic, budgetary, and coordination issues of the Convention while RACs would focus on implementing technical projects and programs associated with fulfilling the objectives of the each protocol.¹³⁸ Each

Regional Activity Centers were also identified by an informant as a method of enhancing the effectiveness of the Nairobi Convention:

“(One suggestion for the enhancement of the Nairobi Convention would be the) identification of regional specialist/activity centers, such as to implement certain provisions of its Work Program,” (civil society, regional NGO).

In addition, RACs are one option recommended by Rochette and Billé (2013) as a way to strengthen the Nairobi Convention institutional structure, and subsequently was recommended as one of two potential modalities to the Contracting Parties through a conference paper at COP7.¹³⁹

Table 7. SWOT analysis on Regional Activity Centers (RACs) as an option to strengthen the WIO regional capacity¹⁴⁰

| | Strengths | Weaknesses | Opportunities | Threats |
|--|------------------|-------------------|----------------------|----------------|
|--|------------------|-------------------|----------------------|----------------|

¹³⁶ Ibid 3, Page 441

¹³⁷ Ibid 3, Page 441

¹³⁸ UNEP/EAF (2012f)

¹³⁹ Ibid 124

¹⁴⁰ Ibid 3

| | | | | |
|---|--|---|---|--|
| Regional Activity Centers (RACs) | <ul style="list-style-type: none"> - Model already experienced in other regional seas frameworks -Flexibility of the options relating to the legal status of the centers -Flexibility in terms of funding | -Possible coordination challenges between the Secretariat and the new centers | -Expected support from the UNEP Regional Seas Programme | <ul style="list-style-type: none"> -No State has formally expressed interest to host the centers -A choice may have to be made between competing Parties at some point -Cannot start (too) small: at least 6-7 staff from the very beginning needed to show added value |
|---|--|---|---|--|

2. Strengthen the Funding Mechanism of the Nairobi Convention

There is an urgent need to find a new method of raising funds for the Nairobi Convention. Many of the member States have fallen behind on annual contributions to the East African Trust Fund over the life of the Convention, limiting the capacity of the Convention to adequately address the current and emerging issues of the WIO region. In the words of an informant:

“(The effectiveness of the Nairobi Convention could be enhanced) through greater facilitation of the Convention Secretariat by enhancing financing and staffing,” (national government, coastal State).

Rochette and Billé (2013) suggest three potential funding options are available for strengthening the funding mechanism of the Nairobi Convention: replenishment of the Nairobi Convention trust fund, a unilateral initiative by a Nairobi Convention Party, and the establishment of a new trust fund. They state that the most feasible option available would be a new, innovative trust fund, as they have historically been supported by civil society, multilateral, and bilateral donors, encourages the sharing of financial accountability among all stakeholders, and facilitates the financing of important activities¹⁴¹

Table 8. SWOT analysis on establishing a new trust fund in the Western Indian Ocean as a potential funding option¹⁴²

| | Strengths | Weaknesses | Opportunities | Threats |
|--|------------------|-------------------|----------------------|----------------|
|--|------------------|-------------------|----------------------|----------------|

¹⁴¹ Ibid 3, Page 441

¹⁴² Ibid 128, Page 441

| | | | | |
|-----------------------|--|--|---|---|
| New Trust Fund | -Sustainable -Collective sharing of burden -Allows multiple sources of funding | -Significant transaction costs to establish the trust fund | -Current important investments of bi- and multi-lateral bilateral donors in the WIO region -“Trendy” approach to ensure sustainability of official development assistance efforts -Extensive experience now existing and documented worldwide and in the region | -Reluctance of some donors to establish and invest in new, permanent structures |
|-----------------------|--|--|---|---|

3. Regular Evaluation of the Nairobi Convention and Associated Protocols

Historically there has been regular evaluation of components implemented under Nairobi Convention, such as WIO-LaB and the Nairobi Convention Clearinghouse and Information Sharing System.¹⁴³ However, the institutional structure and Action Plan of the Convention has only been evaluated once in 2000 (for the period 1997-2000). At COP6 in 2010 in Nairobi, Kenya, Contracting Parties adopted CP 6/4: Strengthening the Nairobi Convention Secretariat,¹⁴⁴ which has led to the review of the coordination mechanisms of the Nairobi Convention presented at COP7. While this is a step in the right direction, efforts should be taken in the future to ensure that the Convention is periodically evaluated to determine whether the legal and institutional structures of the Convention are adequately addressing the current and emerging issues in the WIO region, and the effect the Convention has had on national level policies.

4. Enhance Stakeholder Participation in the Convention Process

The creation of the WIO-Consortium has established a forum for civil society participation within the Nairobi Convention. In the future, steps should be taken to increase the level of multi-sectoral dialogues and participation between the existing and future actors and users of the marine and coastal environment of the WIO. Cooperation and collaboration with a wide spectrum of stakeholders (political, economic, social, and environmental) within the region will ensure that the decision-making process and implementation of the Convention is regionally supported, while providing innovative ideas for the management of marine and coastal resources. This recommendation was emphasized by civil society informants when asked about suggestions for the enhancement of the Convention:

¹⁴³ Evaluations of these projects are located on the Convention website.

¹⁴⁴ UNEP/EAF (2010c)

“Engagement of higher political offices from within each country (president/vice president, budget offices, mining/fishing/development)- perhaps the environmental goal is strong enough to bring these in without the Convention losing its focus, but at the same time, by not having these sectors engaged at the same level the Convention has low capacity to influence them.” (civil society, regional NGO)

“The Convention should approach other sectors and establish strategic dialogues and move more to multi-sectoral dialogues on integrated management; cannot have good governance of marine natural capital (which is key for sustainable development in the WIO) without having trans-sectoral governance, including civil society and private companies.” (civil society, international NGO)

Events such as the Science for Policy Workshop held at COP7 in 2012 should be held in conjunction with future meetings coordinated by the Secretariat, with further encouragement of the participation by the shipping, oil and gas, seabed mining, and fishing industries in these processes.

5. Addressing Current and Emerging Issues in the WIO Region

The current and emerging issues of the WIO region include climate change, oil and gas development, the green economy, utilization of area-based management activities (Ecologically or Biologically Significant Areas (EBSAs), Vulnerable Marine Ecosystems (VMEs), Particularly Sensitive Sea Areas (PSSAs), Marine Protected Areas (MPAs)), areas beyond national jurisdiction (ABNJ), and integrated coastal zone management (ICZM). The Convention has not been consistently updated in the past as international agreements have been come into force, new issues have emerged, and management techniques and approaches have been redesigned. The Convention was amended for the first time in 2010 since its adoption in 1985, leaving a twenty-five year gap in the scope and components of the Convention text. The delay of new knowledge and issues be covered by the Convention was brought up by one civil society informant:

“(The ability of the Convention to address current and emerging issues) varies. In general, it is an open forum, so once issues are raised enough they will be heard and given some floor space, but the Convention is not necessarily proactive in dealing with emerging issues. Climate change was taken on board quickly, but that’s a result of major pressure and discussion globally, and that the region is clearly vulnerable,” (civil society, regional NGO).

At COP7 in 2012, the member States were presented a new Action Strategy that addressed some of the emerging issues indicated above. In the future, effort needs to be made to ensure that any future issues are promptly addressed in order ensure that the region is on the same level politically and from a management standpoint as the rest of the international community. Through periodic evaluation of the Convention, the emerging issues of the Western Indian Ocean will have a greater probability of being addressed.

C. How the Nairobi Convention fits into the Western Indian Ocean

Informants were asked why they thought oceans and coasts were important policy area for the Western Indian Ocean. The answers were compiled and form the argument presented below:

“The Western Indian Ocean is important on two levels: on a biological and an oceanographic level. Many currents in the region cause a large variety of endemic biodiversity; for example, the Agulhas is cold and nutrient rich, while the Somali current is warm and nutrient poor. From a biological standpoint, there are important coastal and marine ecosystems from which local coastal communities derive their livelihoods. This includes terrestrial coastal forests, mangrove ecosystems, deltas, estuaries, shoreline ecosystems, sea grass beds and coral reefs, among others.

Half of the population in the region lives on the coastal zones and depends on the oceans. The countries in the region have significant ocean and coastal territory and resources, so there is a need to address them, in particular because they can provide significant wealth and benefits to people (whose income is generally low, so income generation is important), but also because the assets are vulnerable to degradation through bad practices, overuse, and external threats. There are major industrial activities occurring in the coastal zones, including the mining of mineral sands and salt production. In the open ocean, other economic activities include commercial and artisanal fishing, maritime transport, and tourism. Foreign nations are coming to the region to exploit fisheries, mining and carbon resources. Issues such as oil spills from development and shipping are affecting marine species, and fishing occurring in one country’s EEZ is affecting another country’s EEZ where the fish breed and spawn.

There is a high stake to the WIO countries in using the coastal and marine resources, and they have to be managed jointly in a transparent way. Countries have realized their obligations to protect and conserve the coastal and marine environment come mainly from global and regional instruments to protect oceans and coasts. They realize that if the environment is not well managed, countries are subject to environmental degradation, deterioration, environmental losses, and financial instabilities. Due to cross-territorial linkages, countries realize that any policy for management needs to be developed across countries, and not in national silos.”

As stated in the introduction, the Western Indian Ocean has six major regional environmental regimes, including the Nairobi Convention. The Nairobi Convention is the only regional environmental regime that implements management activities dealing with land- and sea- based sources and activities of pollution, integrated coastal management, conservation of regional flora and fauna through protected areas, and transboundary pollution emergency management. The Convention, however, does not encompass fisheries in the Western Indian Ocean, and relies on the regional fisheries management agreement (SIOFA), the tuna fisheries management organization (IOTC), and the regional fisheries commission (SWIOFC) to manage fisheries resources. Due to the current status of SIOFA as a fisheries agreement, there is only one functioning fisheries management regime in the Western Indian Ocean areas beyond national jurisdiction (ABNJ). Further collaboration among existing regimes in the region is needed to protect the biodiversity and resources of the ABNJ.

Piracy has become a major issue in the Western Indian Ocean region, especially off the coast of Somalia. There are two types of piracy occurring in Somali waters: defensive and ransom¹⁴⁵ (this section is focused on the latter). The lack of national authority or policies governing sovereign waters, Somalia is prone to foreign nations exploiting fisheries and other resources, as well as the use of its ocean area as unregulated dumping grounds for toxic wastes. As a result, local fishermen have teamed up to defend their waters from foreign fleets and illegal dumpers. Somali waters are patrolled by fishermen and coastal residents, creating a large enforced protected areas. The Nairobi Convention could contribute to the protection of these areas from foreign ships through the establishment of marine protected areas under the Protected Areas and Flora and Fauna Protocol. Training and educational initiatives offered to the Somali residents and local decision makers could assist in legitimizing their enforcement, as well as provide incentive to reduce the incidence of defensive piracy in the region.

¹⁴⁵ Samatar, Lindberg, and Mahayni (2010)

The Nairobi Convention has established partnerships and collaborations with institutions, organizations, and other regimes within and outside the region, providing a framework to carrying out the sustainable management and development of the Western Indian Ocean region. There is still further work that needs to be done to link the different environmental management regimes in the region, especially with regional fisheries management bodies, as well as address the pressing issues of the region in order to maximize the opportunities to protect, conserve, and manage the marine and coastal environment.

D. Directions for Further Research

The research conducted to determine the lessons learned from Nairobi Convention came from research conducted over the course of seven months. Six interviews with key informants involved in marine and coastal policy in the WIO region were conducted, along with one site visit in October 2013. Due to time limitations, the depth of the analysis could only go so far, and further research on the topic would provide more useful insights into the Nairobi Convention. Recommendations for future research are provided below.

2. *National Policymakers Survey*

The application of a survey of national-level officials would be useful to see the effect of the Nairobi Convention on a national level. Wowk (2011) employed a similar survey for government officials involved in the OSPAR and NEAFC regimes in the Northeast Atlantic, and was able to gain knowledge that would not be available from a literature review.

3. *Survey of Stakeholders Who Have Participated in the Conference of Parties Meetings*

The application of a survey of regional stakeholders and actors involved in the Nairobi Convention, as indicated by the attendance list provided of Conference of Parties (COP) meetings would increase the size that was sampled in this analysis. With more surveys conducted, trends in responses of informants will be clearer, more in-depth, and questions can be tailored to each type of stakeholder involved to get a range of perspectives on the Nairobi Convention.

4. *Scoring Effectiveness with Methodology Utilized by Miles et al. (2002)*

The research approach used in this paper could potentially be translated into a scored evaluation for a comparative analysis. The methodology used was developed by Underdal (2002) for a set of comparative analyses in Miles et al. (2002) where fourteen studies of international environmental agreements were undertaken to study regime effectiveness. Each case study developed a qualitative description and interpretation of effectiveness, and then translated into numerical values for each of the main variables included in the analysis (variables shown in Figure 5).

| |
|---|
| <p>Dependent Variable: Effectiveness</p> <p><i>Sub-variables:</i> improvement, function optimum, and level of collaboration</p> <p>Independent Variable: Type of Problem</p> <p><i>Sub-variables:</i> malignancy and uncertainty</p> <p>Independent Variable: Problem Solving Capacity</p> <p><i>Sub-variables:</i> institutional capability, power (basic), and informal leadership</p> |
|---|

Figure 5. Variables tested in Miles et al. (2002)

Ordinal scales are used to determine the overall score for each key component tested, as described below.

- **DV: Effectiveness**
 - Improvement: (very low, low, intermediate, major/significant)
 - Function optimum: (low, intermediate, high)
 - Level of collaboration: (low, intermediate, high)
- **IV: Type of Problem**
 - Malignancy: (benign, mixed, moderately malign, strongly malign)
 - Uncertainty: (low, intermediate, high)
- **IV: Problem Solving Capacity**
 - Institutional capability: (low, intermediate, high)
 - Power (basic): (laggard, balance, pushers)
 - Informal leadership: (weak, intermediate, strong)

A codebook is provided with questions to assist in translating the qualitative analysis into numerical values, along with an index and instructions on how to calculate the scores. These scores are then placed in a table to show the overall effectiveness of the regime.

The data collected on the Nairobi Convention is sufficient to complete the analysis from Miles et al. (2002). If completed, there is the opportunity to conduct a comparison analysis with two other Regional Seas Programmes from the Miles et al (2002) case studies: the Convention on the conservation of Antarctic Marine Living Resources (CCAMLR) and the Mediterranean Action Plan (MAP). Both regimes are classified as “low effectiveness” in comparison to the other regime case studies included in the analysis. The resulting analysis

could lead to evaluation of the strengths and weaknesses of the Regional Seas Programmes from a regime effectiveness perspective.

Environmental degradation occurring in the Western Indian Ocean has been addressed through the formation of the Nairobi Convention, a regional environmental framework to protect, manage, and develop the marine environment. However, the Convention has not been entirely effective in changing actor behavior, leaving the marine environment threatened by increasing anthropogenic impacts in the region

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