

# Special Report

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## A Regional Assessment of Marine and Coastal EbA in SADC

HANNAH SACK



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# Executive summary

Ecosystem-based adaptation (EbA) is the use of biodiversity and ecosystem services as part of an overall climate adaptation strategy to help people adapt to the adverse effects of climate change. EbA differs from traditional adaptation interventions in that it seeks to contribute toward three outcomes simultaneously, namely climate adaptation, biodiversity conservation and social well-being. While the recognition of EbA in national climate change responses has gained much traction in recent years, the focus thereof has been on terrestrial ecosystems as opposed to marine and coastal ecosystems. In Southern Africa, coastal communities account for a large percentage of the population; these groups are often poor, exposed to climate impacts, and rely directly on coastal and marine resources for their livelihoods.

Under the Global Climate Change Alliance Plus Programme, the South African Institute of International Affairs implemented a project on ‘Strengthening marine and coastal EbA in the national climate responses of SADC’s coastal states’. This regional assessment serves as one of six key research outputs and gives an overall account of the current state of marine and coastal EbA in SADC. It examines practical EbA implementation examples, policy mainstreaming of EbA, financing mechanisms for EbA, and livelihood opportunities and community partnerships for scaling up EbA, focusing specifically on coastal and marine environments. Challenges and opportunities for EbA policy integration and on-the-ground implementation are also addressed, focusing on the special circumstances and specific needs of Southern African communities.

While the role of oceans and coasts has been largely absent in national and international climate policy architectures, these ecosystems are extremely important for both climate adaptation and mitigation. For Southern Africa, this is particularly important given that coastal environments are home to a high concentration of biodiversity and people. Integrating coastal and marine EbA approaches into national and local climate adaptation plans and nationally determined contributions, as well as other sectoral policies, will help to procure finance to implement on-the-ground EbA projects. This will safeguard coastal communities against climate shocks, protect and promote sustainable management of biodiversity and enhance social well-being through increased income generation, livelihood opportunities and local resilience from the increased availability of coastal resources.

# Abbreviations & acronyms

ASCLME	Agulhas–Somali Current Large Marine Ecosystem
AU	African Union
BCC	Benguela Current Convention
BCLME	Benguela Current Large Marine Ecosystem
CBD	United Nations Convention on Biological Diversity
CBNRM	Community-Based Natural Resource Management
COP	Conference of the Parties
DBS	Development Bank of Southern Africa
DFFE	Department of Forestry, Fisheries and Environment
DRC	Democratic Republic of Congo
EbA	ecosystem-based adaptation
EBSAs	ecologically or biologically significant marine areas
EEZ	exclusive economic zone
GCCA+	Global Climate Change Alliance Plus
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	greenhouse gas
ICZM	Integrated Coastal Zone Management
IUCN	International Union for Conservation of Nature
LMMA	Locally Managed Marine Area
MIMAIP	Ministry of the Sea, Inland Waters and Fisheries
NbS	nature-based solutions
PES	Payment for Ecosystem Services
SADC	Southern African Development Community
SAIIA	South African Institute of International Affairs
SANBI	South African National Biodiversity Institute
SAP	Simplified Approval Process
SDGs	Sustainable Development Goals
SeyCCAT	Seychelles Conservation and Climate Adaptation Trust
UNCCD	United Nations Convention to Combat Desertification

UNCDF	United Nations Capital Development Fund
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention for Climate Change
WEF	World Economic Forum
WIO	Western Indian Ocean
WWF	World Wide Fund for Nature

# Author

## Hannah Sack

is a Climate Change Researcher in the Climate and Natural Resources Programme at the South African Institute of International Affairs (SAIIA).

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Special thanks are given to the contributing authors of the occasional papers produced under this project, as well as the members of the community of practice.

# About SAIIA

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## Cover image

Tahiry Honko Project Area [image courtesy of Louise Gardner, Blue Ventures]

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## CHAPTER 1

# Introduction

Climate change is currently affecting millions of people globally. In Africa, the increased intensity and frequency of climate shocks is exacerbating already extreme levels of poverty and inequality. Africa has an abundance of natural resources, with most of the population relying on the natural resource base and rain-fed agriculture for their livelihoods.<sup>1</sup> With low levels of education and poor climate-information services, there is excessive strain on people's ability to adapt to climate change. This harsh reality calls for the urgent mainstreaming of climate interventions into development policy and the development of robust national climate policy architectures.

According to the AU's Agenda 2063, climate-resilient communities and economies are an integral component of the continental vision for an integrated, prosperous and peaceful Africa.<sup>2</sup> Climate interventions that incorporate natural solutions to climate risks, through the implementation of nature-based solutions (NbS)<sup>3</sup> and ecosystem-based adaptation (EbA), have gained much traction in Africa's climate adaptation priority actions. For example, the [AU Green Recovery Action Plan \(2021-2027\)](#) identified 'NbS and a focus on biodiversity through work on sustainable land management, forestry, oceans, and ecotourism' as a key priority. The [AU Climate Change and Resilient Development Strategy \(2022-2030\)](#) also identifies 'conserving and restoring natural capital' as a guiding principle and makes reference to financing EbA interventions that benefit the most vulnerable populations and ecosystems.

While the terms NbS and EbA are often used interchangeably, EbA refers to a specific subset of NbS to address climate change through adaptation measures. NbS is an umbrella term used to describe a range of interventions that solve various societal issues – including climate-related challenges – using nature.<sup>4</sup>

Coastal and marine environments, while often overlooked in climate policy, contribute significantly towards food security, economic growth, employment, and climate adaptation and mitigation. According to the [AU's Blue Economy Strategy](#), the sector supports close to 50 million jobs and generates a value of close to \$300 billion in Africa, and is expected to grow to \$405 billion by 2030.

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1 Samkelisiwe Nosipho Hlophe-Ginindza and NS Mpandeli, "The Role of Small-Scale Farmers in Ensuring Food Security in Africa", *Food Security in Africa* (IntechOpen, January 2021).

2 AU Commission, *The AU Climate Change and Resilient Development Strategy and Action Plan (2022-2032)* (Addis Ababa: AUC, 2022).

3 According to the UN Environment Assembly (2022), NbS can be defined as "actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits".

4 Stephan Pauleit et al., "Nature-Based Solutions and Climate Change: Four Shades of Green", *Nature-Based Solutions to Climate Change Adaptation in Urban Areas*, eds. Nadja Kabisch et al. (Cham: Springer, 2017).



Despite increasing evidence of the link between climate change and ecosystem management, EbA initiatives in the coastal zone – including the conservation and restoration of mangroves, seagrass beds, tidal marshes, dune systems, coral reefs, kelp, and wetland areas – are inadequately represented in national and regional climate change strategies. This is especially evident in Southern Africa, which has seen missed opportunities to scale up innovative and inclusive climate adaptation interventions in the coastal zone. This is owing to a lack of capacity and knowledge of EbA approaches, coupled with a lack of coordination between environment and oceans ministries, local governments and ministries responsible for incorporating Indigenous people’s rights and knowledge. A broad spectrum of EbA approaches must be developed with political and institutional buy-in through local, national and regional climate and development planning, and the establishment of effective partnerships with relevant non-governmental organisation (NGO), private sector and community-based stakeholder groups.<sup>5</sup>

Despite increasing evidence of the link between climate change and ecosystem management, EbA initiatives in the coastal zone are inadequately represented in national and regional climate change strategies

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5 Romy Chevallier, *Marine and Coastal Ecosystem-based Adaptation for Enhanced Resilience in Southern Africa: Synthesis Report* (Johannesburg: South African Institute of International Affairs, 2019).

# Project overview

In recent years, the role of nature and ecosystems in fighting the climate crisis and enhancing climate-resilient development has been widely acknowledged.<sup>6</sup> The role of nature for climate adaptation and mitigation interventions is particularly important for countries rich in biodiversity, where large populations are reliant on natural resources for their livelihoods and sustenance. EbA project design, implementation and policy development have also increased in recent years. This has been coupled with a push to align biodiversity and climate change agendas both internationally through the UN Framework Convention for Climate Change (UNFCCC) and the UN Convention on Biological Diversity (CBD), as well as nationally through the alignment of climate and biodiversity policies. This presents an opportunity for Africa which, despite contributing less than 4% of emissions globally, has experienced some of the worst effects of climate change in recent years.<sup>7</sup>

Developing countries in Africa are home to many important ecosystems and are therefore central to ensuring several key planetary boundaries are not compromised. Coastal populations in SADC are also reliant on marine and coastal ecosystems to support their economies and the livelihoods of their people through fisheries, maritime transport, tourism and climate resilience. It is therefore imperative that these countries plan, prepare and implement national climate adaptation strategies in the coastal zone that effectively build and sustain their social, economic and environmental resilience and emergency response capacity.<sup>8</sup> To achieve this, however, sufficient finance is needed to help developing countries implement the adaptation measures needed to safeguard communities and ecosystems from the impacts of climate change.

At the 26<sup>th</sup> COP held by the UNFCCC in Glasgow in November 2021, the importance of and need for increased adaptation finance, particularly for developing countries, was brought to the forefront. This resulted in new records of financial pledges to the Adaptation Fund and the Least Developed Countries Fund.<sup>9</sup> In addition, a two-year work programme (the Glasgow-Sharm el-Sheik Work Programme) was established to formalise and operationalise the Global Goal on Adaptation, and developed countries were urged to double their provision of adaptation finance from 2019 levels by 2025. While developing countries continue to press for increased adaptation finance, evidence has showed that the gap

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6 Nathalie Seddon et al., "Global Recognition of the Importance of Nature-Based Solutions to the Impacts of Climate Change", *Global Sustainability* 3 (2020): 1-12.

7 For example, in 2022, across the Horn of Africa approximately 36.1 million people were affected by severe drought, increasing the risk of severe famine and displacement of people. In April 2022, floods in the province of KwaZulu-Natal in South Africa killed over 400 people and caused major damage to important infrastructure such as roads, healthcare centres and schools.

8 Chevallier, *Marine and Coastal Ecosystem-based Adaptation*, 8.

9 Over \$450 million and \$413 million was pledged to the Adaptation Fund and the Least Developed Fund at COP26.

between the finance needed, and the finance provided for adaptation, continues to grow. For example, the UN Environment Programme (UNEP) [Adaptation Gap Report 2022](#) states that international adaptation finance flows to developing countries are 5-10 times below estimated needs. In response to this growing evidence, recent policy processes have begun to incorporate NbS and biodiversity into climate change agreements:

- At COP26 and COP27 (held at Sharm el-Sheikh in Egypt in 2022), progress was made on incorporating NbS into the formal decision documents, namely the [Glasgow Climate Pact](#) and [Sharm el-Sheikh Implementation Plan](#).
- COP27 also resulted in an agreement to establish a dedicated finance facility for loss and damage<sup>10</sup> as well as the launch of the [Adaptation Agenda](#), which outlines 30 adaptation outcomes and global solutions at local levels to enhance resilience for climate-vulnerable communities by 2030. This includes measures to support Indigenous and local communities through the use of NbS.
- The [Mangrove Breakthrough](#) was also launched by the Global Mangrove Alliance in collaboration with the UN Climate Change High-level Champions, which aims to secure the future of 15 million ha of mangroves globally by 2030.
- Other key outcomes for EbA at COP27 included \$230 million in pledges to the [Adaptation Fund](#) and individual country commitments to NbS. For example, the US launched the Nature-Based Solutions Roadmap, a \$25 billion national framework to include NbS in national climate policy.<sup>11</sup>

However, despite this progress, much attention in recent years has been on NbS and EbA in terrestrial ecosystems, with little focus on the coastal and marine environments. As international conventions such as the UNFCCC and the CBD continue to increase efforts and focus on oceans for climate action, the need for coastal and marine EbA to safeguard vulnerable coastal communities is becoming more evident.

In 2019, SAIIA implemented a project on Marine and Coastal Ecosystem-based Adaptation for Enhanced Resilience in Southern Africa ([MEBARSA](#)), focusing specifically on [Mozambique](#), [Seychelles](#), [South Africa](#) and [Tanzania](#). The project highlighted a lack of inclusion of EbA in coastal zones in SADC, a lack of regional cooperation among member countries to manage and protect vital coastal ecosystems, and an absence of a regional vision and ambition in national climate policies and Nationally Determined Contributions (NDCs). The current project on ‘Strengthening marine and coastal EbA in the national climate responses of SADC’s coastal states’ builds on the findings of MEBARSA. It aims to strengthen understanding of the role of marine and coastal EbA in enhancing climate resilience among regional institutions and national policy audiences. It will do this by

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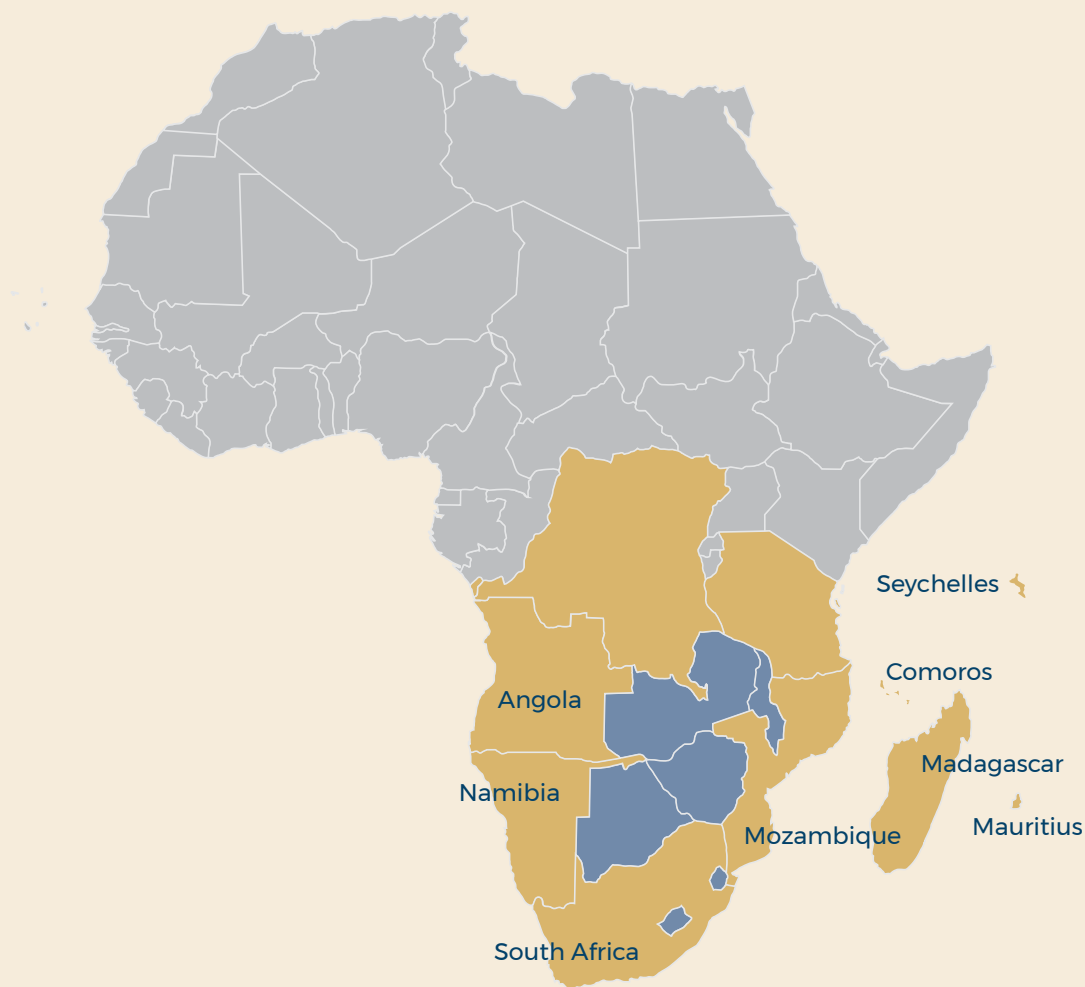
<sup>10</sup> Loss and damage refers to the destructive impacts from climate change that cannot be avoided either through mitigation or adaptation.

<sup>11</sup> US Nations Climate Task Force, “[Opportunities To Accelerate Nature-based Solutions: A Roadmap For Climate Progress, Thriving Nature, Equity, & Prosperity](#)”, 2022.

providing a stronger evidence base to support the inclusion of marine and coastal EbA into national climate policies and strategies. Ultimately, the project seeks to achieve three specific objectives:

- establish an evidence base for the potential of EbA in SADC coastal and island countries to adapt to climate change while supporting job and livelihood opportunities;
- strengthen EbA action by SADC coastal and island countries in NDCs through the revision and inclusion of EbA in the NDCs and other climate policies; and
- establish a regional marine and coastal EbA Community of Practice in SADC to strengthen inclusive governance of marine and coastal EbA.

**Figure 1** Research focus countries in SADC



Source: Map constructed by author

In promoting more effective climate action through marine and coastal EbA, this project seeks to address interrelated challenges faced in the SADC region. Healthy ecosystems provide essential ecosystem services that support local livelihoods and enhance climate resilience. At the same time these ecosystems face a range of pressures. While coastal and marine ecosystems (and the communities that depend on them) are impacted by climate change, the preservation and restoration of these ecosystems can equally form part of an effective climate response. For this to occur it is essential that evidence-based interventions are implemented at the appropriate level of policy and practice. Emerging insights on good practice exist within the SADC region and elsewhere in the Global South, yet opportunities for knowledge sharing and policy dialogue are not adequately supported. Through the establishment of a regional community of practice to share knowledge and disseminate research, this project seeks to enhance the uptake of EbA in the climate policy responses of SADC's coastal and island states, namely Angola, Comoros, the Democratic Republic of Congo (DRC), Madagascar, Mauritius, Mozambique, Namibia, Seychelles, South Africa and Tanzania.

This report provides a high-level assessment of marine and coastal EbA in the region. Through case studies and best practice examples the report explores specific components of marine and coastal EbA. These include the role of innovative financing models, effective EbA policy instruments and engagement platforms, and enabling partnerships and community involvement in EbA interventions. Four in-depth thematic studies have been produced as additional deliverables to this project, which have informed the findings of this assessment.

#### RESEARCH OUTPUTS PRODUCED UNDER THIS PROJECT

- **Occasional paper:** 'Financing EbA for Marine and Coastal Resources'  
by Angelique Pouponneau
- **Occasional paper:** 'Strengthening Marine and Coastal EbA in Climate Policies in Southern Africa'  
by Jessica Thorn
- **Occasional paper:** 'Livelihood Opportunities Through Scaling Marine and Coastal EbA'  
by Penelope Price and Thérèse Boulle
- **Occasional Paper:** 'Governance and Community Participation in Marine and Coastal EbA in SADC'  
by Celia Macamo

Research for the thematic studies was conducted by experts from within the SADC region using desktop research methodologies and direct stakeholder engagement (with policymakers, practitioners and sector experts at national, provincial and local levels) in the 10 coastal and island countries.

# Ecosystem-based adaptation

The CBD defines EbA as ‘the use of biodiversity and ecosystem services as part of an overall climate adaptation strategy to help adapt to the adverse effects of climate change’.<sup>12</sup>

Known as the natural solution to climate change, EbA showcases that healthy and intact ecosystems can safeguard vulnerable communities from climate change impacts such as floods, cyclones and sea-level rise.<sup>13</sup> Depending on the type of ecosystem, the intervention chosen and the way that intervention is implemented (eg, participatory approaches vs. traditional top-down approaches), EbA can help deliver a multitude of climate-related sustainable development benefits, including:

- disaster risk reduction (eg, through storm surge protection);
- food security (eg, by increasing the availability of catches for fisheries);
- sustainable water management (eg, through improving water quality at the natural source); and
- livelihood diversification (eg, through increased availability of natural resources).

What makes EbA different to other adaptation approaches is that it seeks to contribute to three outcomes simultaneously: 1) climate adaptation, 2) socio-economic and human well-being benefits, and 3) biodiversity conservation and restoration (see Figure 2). Thus, EbA provides a multitude of co-benefits to society, often particularly benefitting the local communities that rely on natural resources for their livelihoods.

EbA approaches have proved effective in both rural and urban settings by providing flexible, cost-effective and broadly applicable alternatives for reducing the impacts of climate change.<sup>14</sup> It is important to note, however, that EbA is often defined, referenced and applied differently in diverse country policy contexts. It can include a range of policy and governance-focused approaches (eg, EbA strategies, policy instruments and related legislative tools), on-the-ground actions and projects, and area-based policy management frameworks, such as marine protected areas (MPAs), marine spatial planning frameworks and coastal retreat or setback lines.<sup>15</sup>

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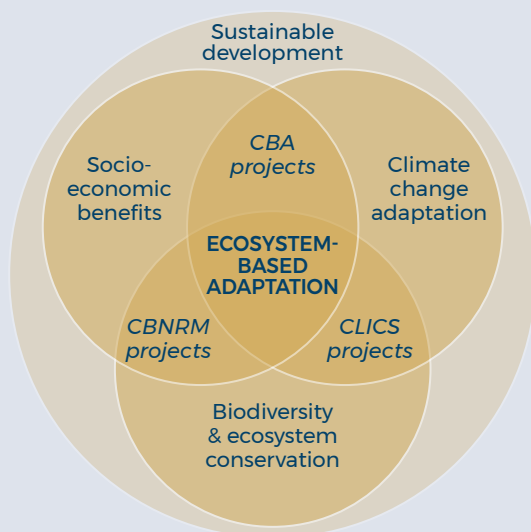
12 Secretariat of the Convention on Biological Diversity, *Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change*, Technical Series 41 (Montreal: Secretariat of the Convention on Biological Diversity, 2009).

13 Chevallier, *Marine and Coastal Ecosystem-based Adaptation*, 8.

14 Hannah Reid et al., *Is Ecosystem-Based Adaptation Effective? Perceptions and Lessons Learned from 13 Project Sites*, Research Report (London: International Institute for Environment and Development, 2019); Richard Munang et al., “Climate Change and Ecosystem-based Adaptation: A New Pragmatic Approach to Buffering Climate Change Impacts”, *Current Opinion in Environmental Sustainability* 5, no. 1 (2013): 67-71.

15 Chevallier, *Marine and Coastal Ecosystem-based Adaptation*, 17.

**Figure 2 Three spheres of EbA**



Note: The integration of two spheres can lead to community-based adaptation (CBA), climate change integrated land use strategies (CLICS) or community-based natural resource management (CBNRM)

Source: Romy Chevallier, *Marine and Coastal Ecosystem-based Adaptation for Enhanced Resilience in Southern Africa: Synthesis Report* (Johannesburg: South African Institute of International Affairs, 2019)

EbA in the coastal zone can be implemented through various restoration, sustainable management and conservation efforts, or through a mixture of ‘green-grey’ hybrid interventions – approaches that combine green (nature-based) with standard grey (engineered) solutions – such as dams, water treatment plants and coastal defence structures.<sup>16</sup>

Coastal ecosystems create natural buffers for communities along the coastal zone that are highly at risk to sea-level rise, cyclones, floods and storm surges. For example, mangroves have been proven to protect coastal communities from current and projected increases in the number of tropical storms. Coastal ecosystems, such as mangroves, kelp forests and seagrass beds, also have great potential for carbon sequestration, thus also contributing to climate change mitigation. For example, mangroves can store up to five times as much organic carbon as tropical upland forests.<sup>17</sup> Coastal sand dunes have protective capabilities, acting as natural barriers against flooding from storm surges and sea-level rise. Dune vegetation also helps to trap sand, which stabilises and helps the dunes to grow, creating stronger and higher barriers against the onset of coastal storms.<sup>18</sup> Chapter 5 of this report describes other key examples of EbA interventions that can be applied in coastal and marine environments, using case studies from within the SADC region.

16 Green-Gray Community of Practice, *Practical Guide to Implementing Green-Gray Infrastructure* (Arlington: Green-Gray Community of Practice, 2020).

17 M Chatting et al., “Future Mangrove Carbon Storage Under Climate Change and Deforestation”, *Frontiers in Marine Science* 9 (2022): 1-14.

18 Felice D’Alessandro et al., “Coastal Sand Dune Restoration With an Eco-Friendly Technique”, *Aquatic Ecosystem Health and Management* 23, no. 4 (2020): 417-426.

# The importance of coastal and marine ecosystems

Marine and coastal ecosystems need to be protected due to the important ecosystem services<sup>19</sup> they provide, and their crucial contribution to national economic growth. Notably, oceans cover approximately 72% of the Earth's surface, 40% of the world's population lives within 100km of the coastline, and shipping accounts for more than 90% of trade between countries.<sup>20</sup> The fisheries sector is an important global industry that needs to be safeguarded, as food insecurity continues to grow globally. Fish are an extremely nutritious food source, and evidence shows that marine animal food production produces less greenhouse gas (GHG) emissions per portion of protein than terrestrial animal food production.<sup>21</sup> However, coastal and marine environments continue to be degraded by economic activity, habitat destruction, land conversion, pollution impacts and overfishing.<sup>22</sup> A recent study by the University of Queensland found that only 15.5% of the world's coastal regions remain ecologically intact.<sup>23</sup> For developing countries, and Africa in particular, small-scale fishing continues to be threatened by climate change. Ocean acidification, temperature changes and unsustainable fishing practices continue to destroy nutrient sources and reduce the availability of catches.

Services provided by marine and coastal ecosystems can be separated into four main categories: provisioning, regulating, cultural and supporting.<sup>24</sup>

- Provisioning services refer to specific products obtained from the ecosystems such as seafood and energy.
- Regulating services refer to the benefits obtained from the regulation of ecosystem processes such as flood prevention and climate regulation.
- Cultural services are the non-material benefits obtained from the presence of the ecosystem, such as recreational activities that contribute toward the tourism industry and education.
- Supporting services, such as photosynthesis and nutrient recycling, are those needed to maintain other services.

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19 Ecosystem services can be defined as the benefits people obtain from ecosystems.

20 Swati Ganeshan and Mani Juneja, "[Keeping Oceans Healthy to Keep the Blue Economy Running](#)", Energy and Resources Institute, February 21, 2020.

21 Ganeshan and Juneja, "Keeping Oceans Healthy".

22 Pedro Manuel Carrasco De La Cruz, "The Knowledge Status of Coastal and Marine Ecosystem Services: Challenges, Limitations, and Lessons Learned From the Application of the Ecosystem Services Approach in Management", *Frontiers in Marine Science* 8 (2021): 1-27.

23 Brooke A Williams et al., "Global Rarity of Intact Coastal Regions", *Conservation Biology* 36 (2022): 1-12.

24 Millennium Ecosystem Assessment Board, *Ecosystems and Human Well-Being*, Report (Washington DC: Island Press, 2005); Chevallier, *Marine and Coastal Ecosystem-based Adaptation*, 12.



Oceans and coastal ecosystems also provide vital services in response to climate change. The ocean is currently the largest global carbon sink, responsible for carbon sequestration, reduction of GHG emissions, and heat and energy absorption. It does this through two methods. The 'biological pump' transfers carbon absorbed by phytoplankton near the surface toward the seabed via the food web, and the 'physical pump' transfers carbon toward the seabed through ocean circulation.<sup>25</sup>

Coastal ecosystems, including coral reefs and mangroves, also play a key role in providing vital services for adaptation and resilience to climate change. Coral reefs contain almost a third of the world's marine fish species.<sup>26</sup> Recent studies indicate that, globally, 50% of reef-building corals have disappeared over the past 30 years. Mangrove forests provide habitat for numerous species and protect coasts from extreme weather events, sea-level rise and coastal erosion. They also sequester carbon, filter out pollutants from water and provide a multitude of resilience and adaptation-related livelihood and health benefits from fisheries, tourism, timber and non-timber products. However, more than one-fifth of the world's mangroves have been lost over the past 30 years and many of the remaining mangrove forests are degraded.<sup>27</sup> In many instances, the absence of natural coastal defences results in devastation to infrastructure, as well as loss of lives at the onset of climate disasters. This was evident in April 2022, when the coastal province of KwaZulu-Natal in South Africa experienced one of its worst flooding events in recent years, which killed over 400 people.

#### CASE STUDY: CYCLONE IDAI, MOZAMBIQUE

The coastal city of Beira in the Sofala province of Mozambique is the second largest city in the country, with an estimated population of 991 200 people. It is extremely vulnerable to climate change and climate hazards such as cyclones, sea-level rise and coastal flooding. In March 2019, Beira experienced one of the most intense tropical cyclones to hit sub-Saharan Africa, Cyclone Idai. Heavy rains and strong winds caused by the cyclone resulted in extensive damage to infrastructure and loss of lives in the provinces of Sofala, Manica, Zambezia, Inhambane and Tete. It is estimated that approximately 1.5 million people in these provinces were affected, over 1 600 were injured and more than 600 died. Damage to infrastructure was estimated at \$796 million, with transport and energy the most affected. Agriculture and fisheries sectors were also heavily impacted, increasing food insecurity throughout the country. The following month a second cyclone, Cyclone Kenneth, hit the country's northern city of Pemba.

25 Ocean and Climate Platform, "The Ocean, a Carbon Sink", <https://ocean-climate.org/en/awareness/the-ocean-a-carbon-sink/>.

26 UN Environment Programme, *Options for Ecosystem-based Adaptation (EBA) in Coastal Environments: A Guide for Environmental Managers and Planners* (Nairobi: UNEP, 2016).

27 Romy Chevallier, "Promoting Marine and Coastal Ecosystem-based Adaptation" (Policy Insights 56, SAIIA, Johannesburg, 2018).



Damage to coastal infrastructure in Beira after Cyclone Idai [image courtesy of Celia Macamo]

Despite the devastation caused by Cyclone Idai, natural ecosystems in certain parts of the city resulted in greater protection for communities in these areas. A small patch of mangroves in Praia Nova provided protection for the buildings behind them. These were noticeably less affected than buildings in areas along sandy beaches where mangroves had been cleared, for example at Palacio dos Casamentos. After Idai, the country launched a [National Mangrove Strategy 2020–2024](#), which aimed to restore 5 000ha of mangroves by 2022. Targets for mangrove management were also set, emphasising effective stakeholder engagement, promoting blue carbon\* and encouraging a sustainable finance mechanism for mangrove conservation. A National Mangrove Ecosystem Restructuring Programme started in 2021, and in June 2022 more than 80% of the planned 5 000ha of mangroves had been restored. In addition, in February 2022, the Ministry of the Sea, Inland Waters and Fisheries (MIMAIP) signed an MoU with the not-for-profit organisation Blue Forest to restore 185 000ha of mangrove forest over 30 years in the central provinces of Sofala and Zambezia.

\* Blue carbon is a term used to describe carbon that is captured by marine and coastal ecosystems.

Sources: Barbara P van Logchen and Antonio J Queface, eds., *Responding to Climate Change in Mozambique*, Synthesis Report (Maputo: National Institute of Disaster Management, 2012); UNEP, "[Mozambique Cyclone Idai Post-Disaster Needs Assessment](#)", May 2019; Celia Macamo, "After Idai: Insights from Mozambique for Climate Resilient Coastal Infrastructure" (Policy Insights 110, SAIIA, Johannesburg, 2021); Diário Económico, "[Mozambique: More than 80% of H1 Planned Mangrove Restoration Accomplished](#)", Club of Mozambique, June 13, 2022; High Commission of the Republic of Mozambique, "[Mozambique to Restore 185,000 Hectares of Mangrove Forests](#)," February 9, 2022

## Growing global recognition of oceans and coasts

There is growing global recognition of the role oceans and coasts play in sustainable development. For example, Sustainable Development Goal (SDG) 14 is to 'conserve and sustainably use the oceans, seas and marine resources'. Protecting the ocean and its resources will also contribute to meeting several other SDGs, including SDG 1 (No poverty), SDG 2 (No hunger), SDG 3 (Good health and wellbeing) and SDG 13 (Climate action). Because EbA provides multiple co-benefits, incorporating EbA into various sector policies could help accelerate the achievement of multiple SDGs. Specifically, integrating EbA in national-level policy processes is important for enabling its implementation. This will create incentives and a sense of ownership for sectors and local government agencies to implement EbA initiatives on the ground.

Because EbA provides multiple co-benefits, incorporating EbA into various sector policies could help accelerate the achievement of multiple SDGs

At a global scale, integrating EbA into the national commitments of climate change policy processes – such as the NDCs under the Paris Agreement – will not only help to procure funding specifically for EbA, but will also accelerate the achievement of other international agreements, such as the CBD and the UN Convention to Combat Desertification (UNCCD). For example, in December 2022, the final text of the [Kunming-Montreal Global Biodiversity Framework](#) was released that outlines 23 action-orientated global targets for urgent action by 2030. Target 8 of the framework makes explicit reference to minimising the impact of climate change and ocean acidification on biodiversity through mitigation, adaptation and disaster reduction techniques, including the use of NbS and EbA. Finally, Target 12 aims to restore and maintain the ecosystem-services provided by nature through NbS and ecosystem-based approaches.<sup>28</sup>

At a global scale, integrating EbA into the NDCs under the Paris Agreement will not only help to procure funding specifically for EbA, but will also accelerate the achievement of other international agreements

<sup>28</sup> UN Convention on Biological Diversity, "[Kunming-Montreal Global Biodiversity Framework](#)", CBD/COP/15/L.25, December 18, 2022.

Marine conservation was emphasised at COP26, where the Great Blue Wall initiative was launched by IUCN, which aims to achieve 30% of marine conserved area coverage in the Western Indian Ocean (WIO) by 2030. This will include the restoration of important ecosystems such as mangroves, seagrass meadows and coral reefs. The Great Blue Wall is a significant initiative for Africa's blue economy development and for the livelihoods of rural and coastal African communities in the WIO<sup>29</sup> (six of which belong to SADC), which depend on coastal and marine resources for their livelihoods. The UN has also declared 2021-2030 the 'Decade of Ocean Science for Sustainable Development', which aims to support efforts to reverse the cycle of decline in ocean health and bring together stakeholders globally to contribute toward ocean science and the creation of improved conditions for the sustainable development of the ocean.<sup>30</sup> In June 2022, the UN Ocean Conference was held in Lisbon in partnership with the government of Kenya. Here, leading stakeholders on global ocean development came together to draft the [Lisbon Declaration](#), which references the importance of EbA and NbS in meeting SDG 14. At the [African Conference on Priority Setting and Partnership Development for the UN Decade of Ocean Science for Sustainable Development](#), held from 10-12 May 2022 in Egypt, the UN's [Ocean Decade Africa Roadmap](#) was launched. The roadmap provides a strategic and targeted plan for Africa's ocean planning, underpinned by nine priority actions.

With an abundance of small-scale fisheries, and exposed rural populations living near coastlines, Africa is particularly vulnerable to the outcomes of continued exploitation, pollution and human-induced climate change on the ocean

Evidently, there is growing consensus among global leaders that the health of the ocean is vital for sustainable development. With an abundance of small-scale fisheries, and exposed rural populations living near coastlines, Africa is particularly vulnerable to the outcomes of continued exploitation, pollution and human-induced climate change on the ocean.

29 The WIO region comprises 10 countries, namely Comoros, France, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa and Tanzania.

30 UNESCO, "United Nations Decade of Ocean Science for Sustainable Development (2021-2030)", <https://en.unesco.org/ocean-decade#:~:text=The%20United%20Nations%20has%20proclaimed,support%20countries%20in%20creating%20improved>

# Coastal and marine ecosystems in SADC

Coastal and island states within the SADC region are each uniquely vulnerable to the effects of climate change. Cities within these countries are often fast growing, highly populated and exposed to extreme weather events. This section gives a brief description of the coastal and marine ecosystems within each of the 10 SADC coastal and island states, to showcase how they are regionally interlinked, yet each having their own unique geography and biodiversity.

## South Africa

South Africa's coastline extends over 3 000km and borders two oceans, namely the Indian Ocean to the south-east and on to subtropical Mozambique; and the Atlantic Ocean to the south-west and up to Namibia's desert. South Africa has 41 MPAs, and its ecosystems are quite diverse along the coast, including sandy beaches, rocky shores, bays, estuaries, kelp forests and coral reefs. Situated in the sub-Antarctic region, the Prince Edward and Marion islands and the exclusive economic zone (EEZ) surrounding them also fall under South Africa's oceanic and coastal jurisdictions. The coastal zone is made up of the two large ecosystems of the Benguela Current Large Marine Ecosystem (BCLME) and the Agulhas-Somali Current Large Marine Ecosystem (ASCLME).<sup>31</sup> South Africa's ecosystems are quite diverse along the coast, and include sandy beaches, rocky shores, bays, estuaries, kelp forests and coral reefs. The country currently has 41 MPAs. The fisheries sector is worth ZAR<sup>32</sup> 8 billion (\$400 million) per year<sup>33</sup> with approximately 28 000 small-scale fishers relying on marine and coastal resources for their livelihoods.<sup>34</sup>

## Namibia

Namibia has a coastline of 1 572km bordering the Atlantic Ocean. Namibia, along with South Africa and Angola, forms part of the BCLME. It has put its entire coast under protection, linking 12 000km<sup>2</sup> of ocean with 110 000km<sup>2</sup> of desert. Its marine component stretches more than 400km from Meob Bay to Chaimas Bay, and 30km into the Atlantic Ocean.<sup>35</sup> This area is known as the Dorob National Park. Namibia's coastline is unique, as it has a coastal desert, known as the Namib Sand Sea, which stretches between the Kuseb River

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31 Siyasanga Sauka, *Marine and Coastal EbA for Enhanced Resilience in Southern Africa Country Review: South Africa*, Special Report (Johannesburg: SAIIA, 2019).

32 Currency code for the South African rand.

33 SADC-EU EPA Outreach South Africa, *South African Fisheries and the SADC-EU Economic Partnership Agreement* (Brussels: EU, 2017).

34 Margaret MacDonald, "The Contribution of Small-Scale Fisheries to the Community Food Security of One South Africa Coastal Community" (Thesis, University of Cape Town, 2019).

35 Hu Berry, "Namibia's Marine Protected Coastline", *Travel News Namibia*, September 2009.

and the Tsau Khaeb National Park.<sup>36</sup> Commercial and recreational fishing contribute approximately 3.5% of Namibia's gross domestic product (GDP).<sup>37</sup> Small-scale fishing employs about 46 500 people and indirectly supports 11% of the population through income, employment, socio-economic benefits and food security.<sup>38</sup>

## DRC

The short coastline of the DRC extends only 40km along the Atlantic Ocean. Recently, three MPAs were established, protecting the breeding grounds of important species such as the leatherback turtle and the Atlantic humpback whale.<sup>39</sup> Its three coastal towns are Muanda, Banana and Nsiamfumu. The Mangroves National Park is the only marine national park in the DRC and is based at the mouth of the Congo River. This mangrove forest covers an area of 768km<sup>2</sup>.<sup>40</sup> The DRC is currently facing unprecedented rates of erosion along its coast, causing problems for the coastal population. The fisheries and aquaculture sector accounts for 12% of the country's agricultural GDP, with the aquaculture sector being largely informal and supplemented with other income-earning activities such as small-scale farming.<sup>41</sup>

## Angola

Angola is situated in south-west Africa along the western Atlantic coast, bordering Namibia to the south. The sandy and rocky coastline extends approximately 1 650km and includes estuaries, wetlands, tidal flats and mangroves.<sup>42</sup> Its coast is mostly flat, with some low cliffs and bluffs of red sandstone, with over half of its population living along the coastline. It has an EEZ of 370km. In 2010 about 100 000 people earned their living in the fishery sector, half in the artisanal fishing sector.<sup>43</sup>

## Mozambique

Mozambique has 2 515km of coastline along the Indian Ocean. The climate and coastal geography ranges from subtropical to tropical from north to south. Its coastal and marine biodiversity is significant with at least 14 different ecological regions, seven sites of outstanding biodiversity (ecologically and biologically significant marine area [EBSA] sites), a high level of endemism and several endangered species of global importance.<sup>44</sup>

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36 Travel News Namibia, "Coastal Strip", <https://www.travelnewsnamibia.com/destination/coastal-strip/>.

37 One Ocean Hub, "Namibia", <https://oneoceanhub.org/where-we-work/namibia/>.

38 Food and Agriculture Organization, "Mapping Women in Small-Scale Fisheries", March 30, 2022..

39 Madhumita Paul, "Republic of Congo Gets Its First Ever Marine Protected Areas", DownToEarth, September 9, 2022.

40 Virunga National Park, "Mangroves National Park", <https://www.virungaparkcongo.com/congo-tour-destinations/mangroves-national-park-parc-national-des-mangroves/>

41 Andrew Parker et al., "Rapid Assessment of the Aquaculture Sector in the DRC" (Decision Support Unit, UK Department for International Development, London, 2018).

42 Nina Baptista et al., *Biodiversity of Angola Science and Conservation: A Modern Synthesis* (Cham: Springer Nature Switzerland AG, 2019).

43 UN Food and Agriculture Organization, "Fishery and Aquaculture Country Profiles: Republic of Angola", October 2018.

44 Celia Macamo, *Marine and Coastal EbA for Enhanced Resilience in Southern Africa Country Review: Mozambique*, Special Report (Johannesburg: SAIIA, 2019).

The southern-most coast is a dune coast, the central coast is swampy with shallow muddy beaches, and the northern coast consists of tropical marine ecosystems dominated by a coral coast extending up toward Tanzania. According to the World Bank, more than 350 000 Mozambicans rely on the fishing sector for their livelihood, with artisanal fishing representing about 90% of the annual fish production.<sup>45</sup>

## Tanzania

Tanzania is bordered by the Indian Ocean to the east, Kenya and Uganda to the north, Rwanda, Burundi and the DRC to the west, and Zambia, Malawi and Mozambique to the south. Its coastline stretches over 1 424km and includes Zanzibar, as well as several other smaller islands. Tanzania is known for its rich coastal and marine life consisting of coral reefs, mangroves, seagrass beds, estuaries, sandy beaches, cliffs and muddy tidal flats. It accounts for roughly 1% of mangroves worldwide; the largest block is in the Rufiji Delta. The mainland of Tanzania and Zanzibar have different institutional frameworks to deal with environmental governance.<sup>46</sup> In 2021 this sector contributed approximately 1.75% to Tanzania's GDP, provided employment for about 200 000 people, and about 4.5 million people indirectly relied on fishery activities.<sup>47</sup>

## Madagascar

Madagascar is an island country situated in south-east Africa in the WIO. It is surrounded by the Indian ocean on all sides except for its western border, which lies along the Mozambique Channel. The coastline extends over 4 000km (the most of any SADC state). It is a key biodiversity hotspot, having more coral species than any other African country. Marine biodiversity in Madagascar is also higher than in any other country in the WIO. The coastal environment ranges from tropical to subtropical and includes extensive mangrove forests, seagrass beds and coral reefs. The ocean is an important source of food security and revenue for the country, with more than half the population living within 100km of the coastline. Marine ecosystems are home to 159 species of fish, 66% of which are endemic to Madagascar. Coastal communities are highly reliant on marine resources, and this high dependence has put significant strain on coastal and marine ecosystems, which has reduced the income of small-scale fishers and coastal communities. The fisheries sector plays an important role in Madagascar's economy, contributing over 7% to the national GDP, and approximately 6.6% of the country's total exports. It is also essential to the food security of the Malagasy people, with 20% of their animal protein consumption being made up of fish. Additionally, almost 1.5 million Malagasy people are involved in the fisheries and aquaculture sector.<sup>48</sup>

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45 World Bank, "Fisheries in Mozambique: A Snapshot", 2021.

46 Romy Chevallier, *Marine and Coastal EbA for Enhanced Resilience in Southern Africa Country Review: Tanzania*, Special Report (Johannesburg: SAIIA, 2019).

47 Jeffrey Peart et al., *A Review of Fish Supply-Demand in Tanzania, Programme Report* (Penang: Worldfish, 2021).

48 World Bank, "Madagascar: Balancing Conservation and Exploitation of Fisheries Resources", June 8, 2020.

## Seychelles

The Seychelles is made up of 115 islands and is situated in the WIO. While its land area is only 445km<sup>2</sup>, it has a large EEZ of 1.3 million km<sup>2</sup>, making the ocean an extremely important contributor to the country's economic growth. Most of the population live on the two main islands of Praslin and Mahé with most other islands being small, isolated and uninhabited. The country is a global biodiversity hotspot. Marine life is characterised by coral reefs, mangroves, macro-algae and seagrass beds, with coral reefs covering an area of approximately 1 690km<sup>2</sup>.<sup>49</sup> Tourism and fishing are the most important industries for employment, contributing approximately 55% and 20% to GDP respectively.<sup>50</sup>

## Comoros

Comoros, or the Union of Comoros, is a group of volcanic islands at the northern end of the Mozambique Channel in the Indian Ocean. It is the third smallest African nation. Its EEZ is an estimated 160 000km<sup>2</sup> covering 427km of coastline, surrounded by the EEZs of France, Madagascar, Mozambique, Seychelles and Tanzania.<sup>51</sup> The coastal ecosystems include mangroves, seagrass beds and coral reefs. Comoros is currently expanding its MPA network, after having only Mohéli National Park, which was established in 2001. It is installing protected areas on Ngazidja (Grande Comore), Ndzuanani (Anjouan) and Mohéli.<sup>52</sup> In 2015, Comoros's annual economic output from the ocean was 18% of its GDP. Fisheries contribute about 30% of the ocean economy.<sup>53</sup> Approximately 10% of the population are fishers, most of them artisanal.<sup>54</sup>

## Mauritius

Mauritius is a subtropical island, with outlying territories consisting of Rodrigues Island and additional smaller islands. It has a coastline of 330km, consisting of lagoons, coral reefs, estuaries, mangroves, saltwater wetlands and sheltered bays. Approximately 1 656 marine species can be found in Mauritian waters. The fisheries sector contributes 1.5% to annual GDP, employing an estimated 11 000 people. An additional 2 200 fishermen and their families rely on artisanal fishing.<sup>55</sup> Mauritius has 18 MPAs, covering 11.9% of its coastal area.<sup>56</sup> It is surrounded by the world's third largest coral reef, the Saya Del Malha.

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49 Jude Bijoux, *Marine and Coastal EbA for Enhanced Resilience in Southern Africa Country Review: Seychelles*, Special Report (Johannesburg: SAIIA, 2019).

50 UN Economic Commission for Africa, *Socio-Economic Assessment of the Blue Economy in Seychelles, Preliminary Analytical Report* (Addis Ababa: UNECA, 2021).

51 Nairobi Convention, "Comoros", <https://www.nairobiconvention.org/comoros-country-profile/#:~:text=The%20Comoros%20EEZ%20is%20an,estimated%202019%20population%20of%20850%2C886>.

52 Malavika Vyawahare, "For 20 Years, Comoros Has Had Only 1 National Park. It's Now Creating 5 More", Mongabay, 31 May 2022.

53 Nairobi Convention, "Comoros: Ocean Economy", <https://www.nairobiconvention.org/comoros-country-profile/comoros-ocean-economy/>.

54 UN Conference on Trade and Development, *Fishery Exports and the Economic Development of Least Developed Countries* (New York: UNCTAD, 2017).

55 Nairobi Convention, "Ocean Economy: Mauritius Country Profile", <https://www.nairobiconvention.org/mauritius-country-profile/ocean-economy-mauritius-country-profile/>.

56 Parmananda Ragen, "Marine Protected Areas and Livelihoods", UNDP, August 28, 2020.



# Coastal and marine EbA in practice

EbA involves governing and managing ecosystems to enhance their resilience to climatic shocks and stresses. It involves maintaining and, where possible, enhancing, the quality and quantity of ecosystem services they provide to society. In so doing it supports communities to adapt to current and future climate risks. In the coastal zone, there are a range of different EbA options that can be implemented, as indicated in Table 1.

The choice of intervention will depend on:

- the type and extent of ecosystem at hand;
- the specific enabling environment and climatic conditions of the area;
- the communities that depend on the resource and what their needs are;
- the governance structures of the country implementing the intervention; and
- the environmental management and climate change policy architecture of the given country.

For example, in the SADC region, the coastal biodiversity and climate risks of Namibia are vastly different to those of Seychelles, meaning they will require different EbA options. While there is ample opportunity for coral and mangrove restoration in Seychelles, a desert country such as Namibia will require EbA approaches such as dune and beach conservation and restoration.


An enabling policy architecture allows for the implementation of EbA interventions alongside or together with conservation initiatives. EbA options – such as the restoration of corals and planting of mangroves – could be implemented in parallel with the establishment of an MPA. EbA can also be implemented alongside ‘grey’ adaptation interventions, which include more traditional hard infrastructure (sometimes referred to as green-grey hybrid solutions). For example, from 2012 to 2019 in Dar es Salaam, a 2 400m concrete seawall was built to safeguard livelihoods, infrastructure and economy against floods and sea-level rise. In addition to the seawall, 1 000ha of mangroves and 2 000m<sup>2</sup> of coral reef were restored.<sup>57</sup> While EbA and green-grey hybrid approaches present unique opportunities for climate adaptation by contributing toward increased climate resilience and aiding biodiversity conservation, engineered man-made defences alone are often favoured as adaptation options in the coastal zone. This is because these structures are commonly perceived to offer far greater protection against climate-related disasters than

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<sup>57</sup> Chevallier, *Marine and Coastal Ecosystem-based Adaptation*, 20.

the climate services offered by ecosystems. According to the IUCN, however, 1km<sup>2</sup> of reef can protect as much as 2 000m<sup>2</sup> of coastal area. The costs of ensuring reef health through management are far lower than constructing and maintaining an equivalent man-made defence.<sup>58</sup>

Table 1 describes various EbA options that can be implemented in coastal zones, with country examples of where such initiatives have been implemented in SADC. While some of these may include examples of community-based adaptation or community-based natural resource management (CBNRM), the co-benefits derived from such interventions often lead to enhanced climate adaptation. There is an emphasis on examples that have community involvement for sustainable management of coastal resources, to showcase the importance of considering such initiatives in SADC as part of climate adaptation planning. The examples are not exhaustive and only represent a percentage of the EbA initiatives being implemented in SADC.

TABLE 1 COASTAL AND MARINE EbA OPTIONS		
EbA option	Description	Country example
<p><b>Mangrove conservation and restoration</b></p> 	<p>Mangroves are small trees or large shrubs that grow in the intertidal zones of tropical and subtropical regions. They are situated at the interface between land and sea, provide habitats for numerous species, improve water quality and nutrient transfer, and offer coastal protection against increasing frequency and severity of storms and sea-level rise. Mangroves also act as carbon sinks.</p>	<p><b>Madagascar:</b> The UK-based NGO <u>Blue Ventures</u> in partnership with the government, established a network of locally managed marine areas (LMMAs) called <u>MIHARI</u>, where rights for marine management are transferred to local communities. These LMMAs cover 17 000km<sup>2</sup> of Madagascar’s coastline, share experiences, explore common issues and develop collaborative opportunities for marine and coastal conservation. A recent project, called <i>Tahiry Honko</i> (translated as ‘preserving mangroves’), promotes locally led conservation, reforestation and sustainable use of over 1 200ha of mangroves in Assassins Bay in southwest Madagascar. It advocates for the development of alternative livelihoods such as beekeeping and sea cucumber and seaweed farming.</p>

58 Chevallier, *Marine and Coastal Ecosystem-based Adaptation*, 21.

EbA option	Description	Country example
<p><b>Coastal wetland conservation and restoration</b></p> 	<p>Coastal wetlands include saltwater marshes, estuaries and lagoons. They offer critical functions such as weakening wave and tidal energy and reducing the risk of flooding and rising sea levels (owing to their capacity to absorb excess water). Additional benefits include providing breeding and nursery grounds for a variety of birds, fish and mammals.</p>	<p><b>Angola:</b> From 2017 to 2021, a project funded by the Least Developed Countries Fund successfully restored 400ha of wetlands in Chiloanga, 10ha in Catumbela, 41ha in Longa, and 110ha in Bero. These coastal ecosystems are important breeding areas for threatened species, including the leatherback turtle. Restoration of the wetlands included clearing water channels to improve protection of coastal communities against flooding and to improve the filtration and quality of the freshwater system. In addition, riverbanks were stabilised with vegetation to increase soil fertility to support agriculture. At least 2 500 people directly benefitted from the project and 500 people were trained on EbA techniques.</p>
<p><b>Seagrass and kelp conservation and restoration</b></p> 	<p>Seagrass and kelp are typically flowering plant species that grow underwater on the sandy substrate of shallow coastal zones. Beds reduce current velocity, dissipate wave energy, and stabilise the sediment in shallow water environments. Reducing wave energy can lessen vulnerability to flooding and coastal erosion. Seagrass and kelp habitats also support livelihoods and are vital for the lifecycle of many species within and around these ecosystems.</p>	<p><b>Mozambique:</b> From 2017 to 2020 nearly 1.5ha of seagrass was restored along the coasts of Inhambane and Maputo Bay. The project was funded by the Nairobi Convention of the WIO and implemented by the Eduardo Mondlane University, in collaboration with the government of Mozambique. Several communities were involved in the restoration work, raising awareness on the importance of seagrass for fisheries, improving water quality, carbon sequestration, and climate protection. Three post-graduate students from the university were also trained on restoration techniques as part of the project.</p>
<p><b>Coral reef conservation and restoration</b></p> 	<p>Coral reefs are marine ecosystems located in shallow coastal zones of tropical and subtropical regions. They occupy a small percentage of the world's oceans but host a disproportionately high share of its biodiversity. Coral reefs act as natural barriers, reducing wave intensity and minimising coastal erosion. They also serve as carbon sinks.</p>	<p><b>Seychelles:</b> From 2011 to 2019 coral reefs on Praslin and Cousin Island were restored through the USAID/Southern Africa Regional Mission's Reef Rescuers Project. Nature Seychelles implemented the project by transplanting 5 225m<sup>2</sup> of coral reef with cultivated coral colonies and building 12 mid-water nurseries, which resulted in a fivefold increase in fish abundance and a threefold increase in fish species and diversity.</p>

EbA option	Description	Country example
<p><b>Dune and beach conservation and restoration</b></p> 	<p>Sand dunes are naturally dynamic environments that are highly sensitive to forcing factors such as wind, wave and tidal variations. Sand dunes represent a spatial transition between terrestrial and marine ecosystems, and therefore act as natural buffers between the land and sea. Dune aquifers offer important water regulation and purification services, as well as protected spaces for rare species of flora and fauna. Sand dunes also protect coastlines from rising sea levels. Physical barriers to minimise disturbances or planting schemes to reforest dune areas can be effective conservation approaches.</p>	<p><b>South Africa:</b> In Cape Town, several projects on dune rehabilitation have been undertaken within the coastal management line and coastal urban edge. The implementation of dune rehabilitation projects and the enforcement of coastal protected areas have realised many adaptation benefits for the city, including: the prevention of wind-blown sand smothering coastal infrastructure; provision of a 'buffer' to storm surges, sea-level rise and coastal erosion; and provision of access to the coast through promoting nodal coastal development in an environmentally sustainable manner.<sup>a</sup></p>
<p><b>Diversification and protection of ecosystem-based livelihoods</b></p> 	<p>People living in coastal communities are often dependent on natural resources and ecosystem services for their livelihoods, particularly fisheries, agriculture and eco-tourism. These ecosystem services are sensitive to climate change impacts. The identification of sustainable, context-specific coastal livelihood strategies that support local development and income generation is key. This includes activities such as butterfly farming for export, modern beekeeping, mariculture options and seaweed farming.</p>	<p><b>Tanzania:</b> In Zanzibar, seaweed farming has offered coastal communities a sustainable livelihood in the face of declining fish stocks. As global demand for sustainable and alternative protein grows, the market for commercial seaweed is also projected to grow. In Zanzibar, approximately 80% of seaweed farmers are women.<sup>b</sup> Seaweed is grown along nylon lines and apparently grows with relative ease for the farmers. However, agreements are required between hotels and communities to ensure that loose lines are collected and do not litter the beaches.<sup>c</sup></p>

EbA option	Description	Country example
<p><b>Sustainable fisheries management</b></p> 	<p>This integrated process seeks to attain an optimal state that balances ecological, economic, social and cultural objectives for fisheries. Management strategies have increasingly turned towards the ecosystem approach to fisheries management (EAFM). The key features of EAFM include: consideration of ecological, social, and governance processes over broad spatial and temporal scales; a focus on resilience, adaptive management, co-management, institutional cooperation and coordination; and a precautionary approach.</p>	<p><b>Comoros:</b> The community-based organisation Dahari works with local fishermen and women to implement sustainable fishing practices such as short-term octopus closures. The closures consist of no-take zones in which local communities assist with the management of the site. Once the closures are opened there is a significant increase in the number of octopus catches, coupled with evidence of an increase in octopus weight, thus benefitting the monetary compensation local fishermen and women receive for their catches. For example, four temporary fishery closures took place in 2018 and 2020 in four communities that resulted in a 100% increase in individual octopus weight.</p>
<p><b>Marine protected areas</b></p> 	<p>MPAs are areas set aside to protect marine ecosystems. They are an example of an area-based management measure relevant to EbA (others include integrated coastal management and marine spatial planning). MPAs have a clearly defined geographical space that is managed through legal or other effective means. They are a tool used to conserve species and habitats, maintain ecosystem functions and resilience, manage fisheries, reduce risks from natural disasters, and protect natural and cultural resources and values important to human well-being.</p>	<p><b>DRC:</b> In 2022, the DRC implemented its first MPA, through three protected zones spanning a total of 4 000km<sup>2</sup>. These zones are effectively three separate MPAs, namely a marine extension to Conkouati-Douli National Park along the border with Gabon, Loango MPA and Mvassa MPA. The creation of the MPAs was supported by the NGO Wildlife Conservation Society (WCS) and the University of Exeter. The MPAs cover 12% of the DRC's EEZ and include globally important nesting grounds for leatherback turtles, the Atlantic humpback whale and several fish species on which local communities rely for their livelihoods. The MPAs are part of a broader Marine Spatial Plan that advocates for the creation of 11 MPAs, the first three of which are now implemented.<sup>d</sup></p>

EbA option	Description	Country example
<p data-bbox="165 215 432 412"><b>Hybrid ‘green-grey approaches’ and integrated adaptation schemes: coastal management lines and artificial reefs</b></p> 	<p data-bbox="485 215 863 1312">Coastal management lines are essentially a spatial planning tool that realigns flood defences to allow for planned flooding in a particular area. The area between the ocean and the coastal management line is then managed as a buffer zone and allows for the creation of new habitats for biodiversity. This is an example of an integrated adaptation scheme, where technical or structural adaptation measures are implemented together with restoration and ‘green’ adaptation initiatives. Similarly, living breakwaters or artificial reefs use structural engineering practices together with restoration to implement a hybrid climate adaptation approach. These offshore submerged structures form a barrier between the sea and land and create new habitat for species to aid the restoration of coastal reef ecosystems and support the services that they provide. A popular example of this is the creation of oyster reefs and oyster shell barriers.</p>	<p data-bbox="904 215 1372 824"><b>Tanzania:</b> In Jambiani Village in Zanzibar, Tanzania, the Mwambao Coastal Community Network in partnership with the Reefball Foundation worked with local fisheries committees to pilot an artificial reef ball project to restore coral reefs and create new breeding grounds for fish and tourism sites. The local fisheries committee is also being capacitated to manage the area, through the development of by-laws and formal management structures with permission from the Zanzibar fisheries authority. This shows how similar initiatives can be piloted at small scale, through the involvement of local coastal communities.</p>

- a Department of Environmental Affairs and South African National Biodiversity Institute, *Case Study: Ecosystem-based Adaptation in South Africa* (Pretoria: DEA), 10.
- b Waziri Ali Hamad and Gazi Md Nurul Islam, "Alternative Employment, Women Participation In Seaweed Farming And Livelihoods Of Small-Scale Fishing Community in Zanzibar", *Journal of Positive School Psychology* 6, no. 7 (2022): 2987-3000.
- c See Penelope Price and Thérèse Boulle, "Livelihood Opportunities Through Scaling Marine and Coastal EbA" (Occasional Paper, SAIIA, Johannesburg, 2023).
- d Madhumita Paul, "Republic of Congo Gets Its First Ever Marine Protected Areas", DownToEarth, September 9, 2022.

Source: Adapted from Romy Chevallier, *Marine and Coastal Ecosystem-based Adaptation for Enhanced Resilience in Southern Africa: Synthesis Report* (Johannesburg: SAIIA, 2019), 17

EbA can occur as a result of Integrated Coastal Zone Management (ICZM). ICZM refers to the co-management of marine and terrestrial ecosystems across different stakeholders at the local, regional and national levels. This ecosystem management approach considers the interconnectedness of different ecological zones, understanding that changes or impacts in one ecosystem will invariably have impacts on another. ICZM approaches can help ensure that estuaries, wetlands, salt marshes, lagoons and other ecological areas lying at the

interface between land and sea can safeguard biodiversity and the social well-being of local communities in the face of negative climate events.

**Figure 3** Examples of coastal and marine EbA options in SADC



Many countries have dedicated ICZM planning policy instruments to clarify the responsibilities of terrestrial and marine management officials. For example, South Africa has an Integrated Coastal Management Act of 2008, and in 2022 Angola finalised its Integrated Coastal Management and Marine Spatial Plan. South Africa, Angola and Namibia also fall under the Benguela Current Convention (BCC), a regional inter-governmental institution established to enforce regional cooperation and management of the BCLME. Through the BCC's Marine Spatial Management and Governance Programme, member states are working to redefine ecologically or biologically significant marine

areas (EBSAs)<sup>59</sup> to incorporate into a regional marine spatial plan. Many of these EBSAs include ecological areas situated between land and sea, consisting of estuaries, lagoons, marshes and mangrove sites. The establishment of EBSAs within the BCLME showcases how regional cooperation through ICZM can lead to conservation and restoration initiatives, aiding the implementation of coastal and marine EbA.

**While different countries will require different EbA interventions, there is still a need for regional cooperation and knowledge sharing between coastal African countries with different biodiversity and climate risks**

While different countries will require different EbA interventions, there is still a need for regional cooperation and knowledge sharing between coastal African countries with different biodiversity and climate risks. Much of the opportunities and challenges around coastal and marine EbA implementation remain consistent regardless of the environmental context. While local community and social needs will vary between countries, applying participatory approaches to EbA planning, mainstreaming, and implementation should be adopted by all countries. This project therefore seeks to enhance knowledge sharing, lesson learning, and collaboration among SADC coastal and island states. This will in turn upscale the extent to which coastal and marine EbA is integrated into climate change priorities for Africa. A community of practice on coastal and marine EbA, established under this project, provides the platform through which such collaboration and knowledge sharing can be achieved, resulting in more robust climate policy development to upscale coastal and marine EbA implementation.<sup>60</sup>

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59 EBSAs are geographically or oceanographically discrete areas that provide important services to one or more species/populations of an ecosystem or to the ecosystem as a whole, compared to other surrounding areas or areas of similar ecological characteristics, or otherwise meet at least one of the 7 EBSA criteria.

60 Currently, there are already some global EbA networks, such as [Friends of Ecosystem-based Adaptation \(FEBA\)](#) and the GIZ International EbA Community of Practice.



# Supporting coastal and marine EbA in policy

## Integrating coastal and marine EbA into climate policies

EbA should be incorporated into a broader adaptation strategy at national and local levels.<sup>61</sup> If EbA is integrated into climate policies and strategies, adaptation interventions will become more cohesive, leading to more efficient resource mobilisation and collaboration across sectors and departments. This also leads to implementation at scale, with EbA initiatives being mainstreamed into national climate plans and small-scale funded pilot projects.

If EbA is integrated into climate policies and strategies, adaptation interventions will become more cohesive, leading to more efficient resource mobilisation and collaboration across sectors and departments

NDCs form the backbone of the Paris Agreement and describe national mitigation and adaptation plans to limit temperature rise to 1.5°C above pre-industrialised levels. NDCs must be updated every five years, with each revision showcasing more ambitious climate commitments than the last. They form part of a country's long-term low-carbon emission climate-resilient development strategy, and are used to plan and negotiate international support for national climate mitigation and adaptation interventions. For this reason, it is increasingly important that EbA is recognised and scaled up as a key climate adaptation solution, with explicit reference to NbS and EbA made in the NDC revision processes.

In 2019, 59 NDCs recognised the value of coastal ecosystems for climate change mitigation and adaptation, with 41 countries specifically referring to the value of mangroves.<sup>62</sup> In 2021, 122 revised NDCs were submitted to the UNFCCC. Of those, approximately 84% included reference to the protection or restoration of ecosystems or agroforestry in their mitigation and adaptation plans. Furthermore, 41% of revised NDCs explicitly mention the term 'nature-based solution' while 57% referred to coastal and marine habitats in their adaptation components.<sup>63</sup> In SADC, six out of the 10 coastal and island countries specifically

61 Convention of Biological Diversity, "The Ecosystem-Based Approach Has Been Recognized as an Important Strategy for Disaster Risk Reduction", November 22, 2018.

62 A Martin et al., "Blue Carbon: Nationally Determined Contributions Inventory", in *Coastal Blue Carbon Ecosystems: Opportunities for Nationally Determined Contributions* (Oslo: GRIDArendal, 2016).

63 Nature Based Solutions Initiative, "Revised Climate Pledges Show Enhanced Ambition for Nature-Based Solutions", February 22, 2022.

mention EbA or NbS in their revised NDCs<sup>64</sup> and all 10 refer to coastal or marine habitats in their adaptation component. It is thus becoming increasingly evident that countries are recognising the important role that ecosystems can play in accelerating enhanced climate resilience, as well as how NbS can contribute toward meeting the temperature goals of the Paris Agreement.

To mobilise resources for EbA, there is a need to further integrate the role of nature and ecosystems within NDCs. They should explicitly mention the type of intervention for climate resilience, adaptation and mitigation, the specific type of ecosystems, and the sectors that will be affected through the proposed interventions. NDCs should also set specific targets over time and measures. For example, in its 2021 revised submitted NDC, Seychelles outlines its intention ‘for coastal planning and infrastructure to be regulated at the national and local level to prioritise the consideration of “blue” NbS for climate resilience.’ It also specifically mentions that it aims to ‘protect its blue carbon ecosystems, ie. at least 50% of its seagrass and mangrove ecosystems by 2025, and 100% of seagrass and mangrove ecosystems by 2030.’<sup>65</sup> Similarly, Mauritius’s recently updated NDC refers to its National Climate Change Adaptation Policy Framework 2021 as the key policy document driving adaptation interventions in the country, focused specifically on NbS for adaptation. The adaptation component of Mauritius’s NDC also specifically includes marine and terrestrial biodiversity as a key sector, with targeted adaptation measures such as ‘improving the management of marine and terrestrial protected areas and the expansion of the protected area network, including rehabilitation of wetlands, seagrass, mangrove plantation, increasing in tree coverage areas and coral reef farming.’<sup>66</sup> Explicit targets and measures for EbA implementation in an NDC illustrate a framework and commitment from government regarding resource use, which creates incentives for bilateral and multilateral donors to support EbA initiatives. This essentially will contribute toward NDC implementation.

Explicit targets and measures for EbA implementation in an NDC illustrate a framework and commitment from government regarding resource use

It is also important that key entry points for EbA implementation across sectors and levels of government are identified. Inclusive and multi-stakeholder engagement platforms should be put in place to ensure a wide range of voices – especially from local and impacted communities – are integrated into EbA planning and implementation. Ongoing

64 This includes Tanzania, the DRC, Madagascar, Seychelles, Namibia and Mauritius. At the time of this analysis Madagascar had only submitted one NDC, in 2016.

65 UNFCCC, NDC Registry, Republic of Seychelles, “Seychelles’ Updated Nationally Determined Contribution”, July 2021.

66 UNFCCC, NDC Registry, Republic of Mauritius, “Update of the Nationally Determined Contribution of the Republic of Mauritius”, October 5, 2021.

work on EbA in South Africa has continued to incorporate a multi-stakeholder and grassroots approach, which has been informed through the development of the Strategic Framework and Overarching Implementation Plan for Ecosystem-based Adaptation (2016–2021). This strategy has resulted in several EbA projects throughout the country<sup>67</sup> and has been the catalyst for ongoing recognition and incorporation of EbA into local climate adaptation plans. This is an example of how a clear EbA framework, aligned with national climate policy, can have compounding effects for scaling up EbA on the ground. It provides clear policy direction for the implementation and management of EbA interventions. For a full comparative policy assessment of marine and coastal EbA in SADC's 10 coastal and island states, see Appendix 1.

#### CASE STUDY SOUTH AFRICA'S STRATEGIC FRAMEWORK FOR EbA

South Africa is the only country in SADC to have established a standalone policy for EbA, namely The Strategic Framework and Overarching Implementation Plan for Ecosystem-based Adaptation (2016-2021). The plan was developed by the Department of Forestry, Fisheries and Environment (DFFE) and South African National Biodiversity Institute (SANBI). EbA Guidelines (2017) were created to provide further clarity about the scope of and criteria for EbA projects, and the safeguards needed to maximise the chances of successful outcomes for specific user groups. This strategy builds on the comprehensive climate policy architecture in South Africa. It expands on some of the key priorities identified in the National Climate Change Response Strategy, which mentions the importance of EbA as part of its overall adaptation plan. The work on developing the EbA policy began in 2012, when the DFFE developed the Climate Change Vulnerability Assessment and the Climate Change Adaptation Plans for South African Biomes of 2015. Thereafter, an EbA Action Plan was developed and priority areas for EbA implementation were identified. This yielded the identification of 54 local municipalities as priority areas for EbA interventions. Out of 54, 14 municipalities were designated as top priorities for EbA intervention implementation. In 2017, an EbA Coordinating Steering Committee (CSC) was established to support implementation. Capacity-building workshops at provincial, district and local levels have also taken place to share the content and learnings of the EbA strategy and guidelines with local climate change government officials, to help integrate EbA initiatives in their integrated development plans. Furthermore, in 2020, the DFFE with support from the GIZ developed concept notes for three out of the 14 top priority EbA municipalities, focusing on EbA and climate disaster risk reduction.

67 For example, UNEP in partnership with Rhodes University implemented a pilot-led project for enhanced water/food security in the Joe Gqabi District Municipality through the installation of five water reservoirs, provision of seedlings and the requisite training on climate-smart agriculture to five villages (ie, 50 households, 250 beneficiaries, local schools and local clinics). Ethekeweni municipality in KwaZulu-Natal has also since invested into EbA projects, for example through the restoration of a wetland at Van Riebeeck Park to reduce flooding, increase storage of water, filter storm water, release water during dry periods, sequester carbon and increase biodiversity. South Africa, Department of Forestry, Fisheries and Environment, *Third National Ecosystem-Based Adaptation Community of Practice Meeting: Meeting Proceedings Report* (Durban: DFFE, 2022).

In 2019, the DFFE also established the national Ecosystem-based Adaptation Community of Practice (EbA CoP), which aims to facilitate knowledge and experience sharing on EbA. Its purpose is to jointly develop harmonised approaches, evidence-based lessons and best practices on how to plan and implement effective EbA to help people adapt to the adverse effects of climate change through a collaborative learning process. Members of this knowledge and exchange network are primarily from national and provincial governments, public entities, NGOs, civil society and research institutions with an interest in strengthening EbA in planning and decision-making.

To date, three meetings for the EbA CoP have taken place, in 2019, 2021 and 2022. The primary purpose of these meetings was to draw lessons and stories from the EbA practices around South Africa as well as sharing of tools and successful approaches. As part of implementing the outcomes of the first and second EbA CoP meetings, the DFFE established four thematic task teams. These themes were mainstreaming and implementation; research; monitoring and evaluation, and resource mobilisation. The establishment of a dedicated EbA policy has resulted in extensive assessments of EbA priority areas and interventions, implementation of EbA, as well as extensive knowledge sharing and mutual learning in South Africa. A call for a service provider to assist in updating the strategy was released in 2022, with a revision to be completed by 2024. While the strategy does not make reference to specific sectors, it aims to strengthen EbA outcomes through the implementation of sector policies and plans. In addition, the DFFE has identified the coastal and marine sectors as a gap in the current strategy, with the aim to better mainstream these sectors into the strategy's revision.

Source: South Africa, Department of Forestry, Fisheries and Environment, *Third National Ecosystem-Based Adaptation Community of Practice Meeting: Meeting Proceedings Report* (Durban: DFFE, 2022)

## Integrating EbA into coastal and marine policy

While it is important that EbA be mainstreamed into countries' overarching adaptation strategies, marine and coastal EbA also presents a unique opportunity to integrate climate-related initiatives into ocean-sector and coastal management policies and programmes. For example, Namibia has been in the process of drafting a Blue Economy Policy, which should be ready for cabinet approval in 2023. The policy includes sectors such as fisheries, marine mining, marine and coastal tourism, maritime transport and coastal infrastructure such as ports, towns and coastal industries. Integrating marine and coastal EbA initiatives could contribute to meeting various objectives related to each of the sectors, ultimately benefiting the economy. Similarly, in Angola, the National Strategy for the Sea was approved in 2022 and the Integrated Coastal Management and Marine Spatial Plan was sent to cabinet for approval. In Mozambique, the Ministry of Land, Environment

and Rural Development has produced a [National Mangrove Strategy 2020-2024](#) and in Seychelles the Ministry of Agriculture, Climate Change & Environment (MACCE) has begun consultations on developing a Blue Carbon Policy to be completed by 2024.

Policies should also be developed to encourage community participation, integrate Indigenous knowledge, and recognise historical land tenure rights of communities

Policies should also be developed to encourage community participation, integrate Indigenous knowledge, and recognise historical land tenure rights of communities, specifically in the context of coastal and marine EbA.<sup>68</sup> Some countries in SADC have managed to successfully integrate community participation into policy, but challenges exist regarding their implementation. For example, in Angola, the National Climate Change Adaptation Plan for the Coastal Zone recognises communities as important stakeholders for implementing the policy. Due to the multiple co-benefits that EbA can provide, marine and coastal EbA specifically should be integrated into other sectoral policies that are either climate or conservation related. For example, Uganda has incorporated EbA components into its Water Policy and the Agriculture Sector Development Strategy through the inclusion of cross-sectoral objectives related to the sustainable management of water and agriculture for adaptation of livelihoods.<sup>69</sup> By identifying entry points for coastal and marine EbA integration in related policies, there is ownership and incentive to ensure that coastal ecosystems are well recognised within national climate change priorities, which is particularly important for local coastal communities in the SADC region.

By identifying entry points for coastal and marine EbA integration in related policies, there is ownership and incentive to ensure that coastal ecosystems are well recognised in national climate change priorities

68 See Celia Macamo, 'Governance and Community Participation in Marine and Coastal EbA in SADC' (Occasional Paper, SAIIA, Johannesburg, 2023).

69 Ninni Itkila, "[Ecosystem-based Approaches to Adaptation in National Policy: A Case Study from Nepal, Peru and Uganda](#)", International Union for Conservation of Nature, December 1, 2011.

# Financing options for coastal and marine EbA

The current demand for EbA financing in coastal regions in Southern Africa far exceeds the amount supplied. Globally, it is predicted that to preserve and restore ecosystems alone, the required investment is \$300–400 billion per year, whereas only \$52 billion currently is invested each year in such projects.<sup>70</sup> EbA interventions are also often undervalued due to a lack of quantifiable data on their adaptation and mitigation contributions. This makes it difficult to forecast rates of return on investments, often disincentivising donors as well as private stakeholders to finance EbA projects. According to the World Economic Forum (WEF), however, approximately half of the globe's GDP is at risk due to the loss of nature.<sup>71</sup> Without investing in NbS to tackle climate change, long-term global sustainability and economic security will be greatly compromised. By designing and positioning EbA projects as not only climate adaptation solutions but also conservation initiatives that simultaneously help to alleviate poverty and inequality, greater EbA financing could be secured.

By designing and positioning EbA projects as not only climate adaptation solutions but also conservation initiatives that simultaneously help to alleviate poverty and inequality, greater EbA financing could be secured

Financing for EbA can come from public funds, donor funding from bilateral and multilateral partners, private sector, philanthropy and blended finance. National government budgets are often used to finance MPAs, but in developing countries finance for marine conservation can be limited due to the high burden of other pressing needs, such as reducing poverty and inequality. These countries thus tend to rely on donor funding, philanthropy or entry fees to fund the establishment and operationalisation of MPAs. Donor funding provides a significant amount of finance for marine conservation in developing countries, often through multilateral institutions such as the GEF, the Adaptation Fund and the GCF. For example, the GEF contributes about \$100 million annually to the protection of marine ecosystems and has helped establish more than 1 000 MPAs worldwide.<sup>72</sup> In Africa, a lack of understanding and capability to develop

70 UN Development Programme, *Nature-based Solutions Finance for NDCs* (New York: UNDP, 2022).

71 UNDP, *Nature-based Solutions*, 7.

72 Organisation for Economic Co-operation and Development, "Sustainable Financing of Marine Protected Areas", in *Marine Protected Areas: Economics, Management and Effective Policy Mixes* (Paris: OECD Publishing, 2017).

bankable project proposals is a key barrier to accessing climate finance from multilateral development funds. African countries should therefore invest in developing skills for designing and managing large-scale marine conservation projects, while blending finance solutions and private sector investment to scale up coastal and marine EbA.

**In Africa, a lack of understanding and capability to develop bankable project proposals is a key barrier to accessing climate finance from multilateral development funds**

Due to its perceived lack of return on investment and the barriers to accessing climate finance for adaptation, non-traditional financing schemes – including community contributions, payment for ecosystem services (PES) and hybrid models such as co-financing national budget processes with public–private partnerships – have proven successful in financing coastal and marine EbA. Below are some examples of successful financing schemes for coastal EbA projects, undertaken in Southern Africa. The list is not exhaustive but provides insight into how some African countries have managed to achieve great marine conservation successes. Seychelles is a country leader in this regard.

## Examples of innovative financing schemes for coastal EbA

### *Debt-for-nature swap*

In 2018, Seychelles became the first country to successfully implement a debt-for-nature swap. This financing mechanism allows for a portion of a developing country's foreign debt to be forgiven in exchange for a financial commitment in domestic environmental conservation and sustainability projects. NatureVest, the investment arm of NGO The Nature Conservancy, mobilised \$15.2 million in loans and \$5 million in grants to 'buy back' \$21.6 million of the government's sovereign debt.<sup>73</sup> The funds were then used to create 13 new MPAs and Seychelles has since progressed from protecting 0.04% to 30% of its national waters.<sup>74</sup>

### *Blue bonds*

Seychelles was also the first country to launch a sovereign blue bond in 2018. It managed to raise \$15 million from international investors, which was used to finance the expansion of

73 See Angelique Pouponneau, "Financing EbA for Marine and Coastal Resources" (Occasional Paper, SAIIA, Johannesburg, 2023); Ganeshan and Juneja, "Keeping Oceans Healthy".

74 Isabelle Gerretsen, "The Deal That Saved Seychelles' Troubled Waters", *BBC*, August 3, 2020.

MPAs, improve governance of priority fisheries and develop the country's blue economy.<sup>75</sup> The Seychelles Conservation and Climate Adaptation Trust (SeyCCAT)<sup>76</sup> manages \$3 million through its Blue Grants Fund and the DBS manages \$12 million in loans through a revolving loan facility, the Blue Investment Fund.<sup>77</sup>

### *Payments for ecosystem services*

PES are financial incentives offered to natural resources managers and communities in exchange for managing their land or resources to provide conservation, restoration or other environmental services such as conservation or restoration. These may include payment of user fees, such as fishing licences or diving fees in MPAs. PES may also be used to manage and restrict access to ecologically rich and diverse coastal areas that significantly boost climate resilience. For example, entry fees into MPAs may be collected and used by government to reinvest into resource and biodiversity management of the MPA. In Tanzania, for example, the Marine Legacy Fund has been established where different user groups pay for fishing licences, marine ecotourism, and oil and gas exploitation. These funds are then distributed to communities for conservation efforts and operational expenses.<sup>78</sup> Although it is not their principal objective, many of these financing schemes also have adaptation co-benefits.

### *Blue carbon projects*

Blue carbon projects can be classified as a type of PES scheme. The establishment of voluntary carbon markets means that carbon credits from sequestration by coastal and marine ecosystems can be sold, with the funds then being used to finance 'blue forest' conservation projects. The Mikoko Pamoja project in southern Kenya is notable for being the world's first blue carbon project. It was established in 2010 and relies on community members to protect and restore mangroves and in turn sell the carbon credits to international buyers for about \$5–\$6 per tonne. In Madagascar, the Tahiry Honko project, run by the Velondriake Association and co-managed by Blue Ventures, is the world's largest community-led mangrove carbon conservation project, with over 1 300 tonnes of avoided carbon dioxide emissions per year. The sale of certified blue carbon credits, verified through Plan Vivo, provides local communities with long-term sources of income.<sup>79</sup> In 2021, the project won the IUCN Pathfinder Award. This recognises outstanding projects working to protect and conserve nature while contributing to improving human health, conservation, technology, land management and climate change adaptation and mitigation.<sup>80</sup>

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75 World Bank, "Seychelles Launches World's First Sovereign Blue Bond", Press Release, October 29, 2018.

76 SeyCCAT is an independent trust fund that was created in 2015 to facilitate the blue bond deal. Since its inception it has managed to attract financing for coastal and marine EbA projects, including mangrove restoration at Pasquiere on Praslin, mapping of seagrass meadows and the integration of blue carbon in Seychelles' international climate policy.

77 See Pouponneau, "Financing EbA for Marine".

78 OECD, "Sustainable Financing of Marine", 125.

79 Plan Vivo, "Tahiry Honko-Madagascar", <https://www.planvivo.org/tahiry-honko>

80 Blue Ventures, "Tahiry Honko Wins IUCN Pathfinder Award", December 9, 2021.



## *Public employment and social protection programmes*

Employment and social protection programmes present a good opportunity for scaling EbA. In South Africa, the Expanded Public Works Programme (EPWP) has been an effective public initiative, aimed at reducing poverty by providing temporary work for the unemployed. In 2021/2022 alone, the programme managed to create 1 016 646 work opportunities, of which 415 897 were for the youth.<sup>81</sup> Through the EPWP, the DFFE has launched Working for Water, Working for Wetlands, Working for Ecosystems, and Working for Coasts programmes, focusing on rehabilitation and protection of terrestrial and marine ecosystems throughout the country. For example, from 2004 to 2019, the Working for Wetlands programme invested more than ZAR 1.2 billion (\$60 million) in the rehabilitation of 1 500 wetlands, which improved the health of more than 70 000ha of wetlands and provided 36 000 work opportunities.<sup>82</sup> This programme is a good example of how adaptation and resilience metrics can be incorporated into public programmes, as measures of success. For example, the performance indicators for Working for Wetlands include both measures on employment and capacity building (eg, number of jobs created and number of training days) and measures on adaptation (eg, number of wetlands rehabilitated and amount of re-vegetation).

It is important to note that agencies such as the ILO are increasingly looking to fund EbA and NbS through such programmes, presenting the SADC region with good opportunities for merging EbA with employment generation.

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81 South African Government, “Public Works and Infrastructure on Work Opportunities Created by Expanded Public Works Programme”, June 15, 2022.

82 DFFE, “Working for Wetlands 2021”, <https://www.dffe.gov.za/sites/default/files/docs/publications/workingforwetlands2021.pdf>.

## CHAPTER 9

# Livelihoods and community partnerships for marine and coastal EbA in SADC

The examples above share insight into the importance of local and community involvement in management of EbA initiatives, ensuring that the benefits accrued through project implementation ultimately go toward the community members reliant on the resources for their livelihoods. Incorporating Indigenous knowledge and gender components into EbA project proposal development is also essential for meeting the output requirements of proposal submissions to several large environmental donor funds. Resilience-building activities through NbS and EbA have the potential to create job opportunities for local communities. As noted in the [State and Trends in Adaptation Report 2021](#), the ocean economy in particular has significant potential for the creation of job-rich adaptation-related investments in Africa.<sup>83</sup> This chapter highlights some key examples from SADC coastal countries where local community management and involvement has resulted in successful and sustainable EbA-related initiatives.

Resilience-building activities through NbS and EbA have the potential to create job opportunities for local communities

When designing EbA projects, is it important that alternative livelihood options for local communities that are dependent on coastal ecosystems for their income are explored and promoted. These communities are often extremely poor, exposed to climate threats, and directly reliant on coastal resources. Not only should alternative livelihoods be promoted through EbA implementation but inclusive participatory platforms should also be encouraged. This will ensure that grassroot and Indigenous knowledge and local community needs are incorporated into natural resource governance in the coastal zone. The involvement of marginalised civil society groups such the elderly, women and youth in EbA projects and engagement platforms is important to ensure the equitable and just governance of coastal resources.

EbA requires on-the-ground implementation, which can be achieved through the involvement of local communities. This can be accomplished through data collection,

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<sup>83</sup> Hannah Reid et al., "Jobs", in *State and Trends in Adaptation Report 2021: How Adaptation Can Make Africa Safer, Greener and More Prosperous in a Warming World* (Rotterdam: Global Center on Adaptation, 2021), 212-231.

surveillance of EbA sites, planting and rehabilitation, and monitoring of project implementation. Coastal community networks such as Mwambao in Tanzania, Dahari in the Comoros and MIHARI in Madagascar have been huge successes in the context of implementing CBNRM in the WIO. These community networks have implemented a range of initiatives, including temporary octopus closures, mangrove planting, and the construction of artificial reef balls and lobster reefs. The establishment of LMMAs has also enabled local communities to gain access to management rights over the marine resources on which they depend for their livelihoods. The LMMA concept was first piloted in Fiji and since has been replicated in other parts of the world, including Southern Africa. It refers to any area under community management, irrespective of its precise legal basis, which could include all or part of an MPA.<sup>84</sup> In the WIO alone, LMMAs protect more than 11 000km<sup>2</sup> of marine resources.<sup>85</sup> In Madagascar, for example, a network of LMMAs has dissolved barriers of access to information and knowledge sharing across communities and supporting organisations in different parts of the country. Through the provision of technical support from the international NGO Blue Ventures, Madagascar's LMMA network has resulted in great economic benefits for local coastal communities, while conserving and rehabilitating the country's important coastal biodiversity.

In the WIO alone, LMMAs protect more than 11 000km<sup>2</sup> of marine resources

#### CASE STUDY LOCALLY MANAGED MARINE AREAS IN MADAGASCAR

To deal with growing pressures on the ocean, the government of Madagascar sought to expand MPAs following the launch of the Durban Vision at the Fifth World Congress of National Parks in 2003.\* While this was an important step to safeguard Madagascar's rich biodiversity, it failed to account for the people who depend so greatly on the extraction of marine resources for their livelihoods. This, coupled with poor governance of conservation initiatives, led NGOs such as Blue Ventures, Conservation International, WCS and World Wildlife Fund (WWF) to turn their attention to grassroot solutions for marine and coastal governance in Madagascar. This opportunity had already been identified by the Malagasy government, with the establishment of the GELOSE\*\* law in 1996 that laid the legal foundation for the transfer of natural resource management rights to local communities. This led to the establishment of the first LMMA in 2004, drawing on the concept that community

84 A Cooke et al., "Marine and Coastal Ecosystems: Marine and Coastal Biodiversity and Conservation", in *New Natural History of Madagascar*, ed. Steven M Goodman (Princeton: Princeton University Press, 2022), 44.

85 S Rocliffe et al., "Towards a Network of Locally Managed Marine Areas (LMMAs) in the Western Indian Ocean", *PLOS ONE* 9, no. 7 (2014): 1-14.

participation could pose a long-term solution to poor governance of marine resources in Madagascar. Since then, the number of LMMAs has grown significantly in the country, most notably through the coastal community network of MIHARI.



Mihari community members [image courtesy of MIHARI network]

MIHARI (marine resources management at a local level) was established in 2012 and has grown to consist of over 219 LMMAs and 25 NGO partners, operating in 12 out of 13 of the country's coastal regions. The MIHARI network was created as a means of linking isolated coastal communities so that community leaders could share ideas and successful models through peer-to-peer learning. It also allows for greater representation of small-scale fishers at a national and international level. For example, in 2018, the network successfully managed to stop agreements between the Malagasy government and Chinese partners that would have allowed 330 fishing vessels to operate off Madagascar's coastline. The network has also established its own set of customary laws to govern the LMMAs known as *dina*, which is recognised by the Malagasy government and enforced through a mediated contract between the government and the LMMA. A successful example of community-led coastal resource management overseen by the network is evident in Tsimipai Bay, where the

management rights of 6 154ha of mangroves were successfully transferred to 12 community conservation zones delineated into permanent reserves. In 2020, the network was also recognised as autonomous, giving it full legal rights to lobby, manage grants, and engage in advocacy work. Thanks to the great success of the network, this co-management approach through the operationalisation of LMMAs has been widely acknowledged as a successful governance mechanism for natural resource management in the WIO.

\* The government of Madagascar made a commitment in September 2003 to conserve the nation's wealth of natural resources and biodiversity by tripling the protected area network from the existing 1.7 million ha to cover 6 million ha or 10% of the country's surface area in the coming five years.

\*\* GELOSE stands for 'Gestion Locale des Ressources Naturelles Renouvelables, or Gestion Locale Sécurisée' (Local Management of Natural Renewable Resources).

Source: Vatosoa Rakotondrazafy, MIHARI, email to author.

While promoting EbA is important to ensure coastal communities maintain access to marine resources, it is also important to promote alternative livelihoods in coastal communities. This will ease pressure on coastal resources and promote income diversification and skills development in these communities. For example, seaweed and sea cucumber farming, beekeeping and eco-tourism are some of the alternative livelihoods

While promoting EbA is important to ensure coastal communities maintain access to marine resources, it is also important to promote alternative livelihoods in coastal communities

that have been established for coastal communities in Southern Africa. As mentioned in the previous section, in South Africa several EbA initiatives have been mainstreamed into the Working for Coasts, Working for Ecosystems and Working for Wetlands public programmes, which have increased the number of jobs in the public sector specifically dedicated to coastal rehabilitation and restoration. In Durban, in South Africa's KwaZulu-Natal province, several transformative river management projects have been launched, funded by the C40 Cities Finance Facility. These projects have been framed as a community-partnership approach whereby community members are offered employment in river rehabilitation, alien invasive clearing and cleaning up of litter in river culverts and stream banks. They promote community-based ecotourism and sustainable livelihoods

in agriculture near restored rivers, recycling of waste from rivers, and community capacity building on river monitoring.<sup>86</sup> Blue carbon projects, such as the Tahiry Honko mangrove rehabilitation project in Madagascar, also provide an opportunity for coastal communities to directly benefit from coastal restoration through the sale of carbon credits.

It is important, that through platforms such as the SADC regional community of practice established under this project, lessons from success stories such as the Expanded Public Works Programme in South Africa and the MIHARI coastal community network in Madagascar are shared. This will help to establish a regional vision for coastal and marine EbA in SADC, mainstream coastal and marine EbA into national and regional climate policies, and help to initiate partnerships and collaboration across country partners for coastal and marine EbA project design and implementation.

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86 C40 Cities Finance Facility, “Transformative Riverine Management Projects in Durban: Background and Structuring”, 2019.

# Challenges

While coastal and marine EbA offers many opportunities for Southern African countries to enhance their climate resilience, reduce poverty and vulnerability of coastal communities, and increase biodiversity conservation, the implementation, management and funding of such initiatives are not without significant challenges. The following challenges to successful coastal and marine EbA implementation in SADC have been identified through desktop research and key informant interviews with members of the SADC community of practice on coastal and marine EbA.

### **Overlapping mandates between different ministries and departments often make it difficult to ensure ownership of coastal EbA projects**

In Tanzania, the oversight and management of mangroves falls under the jurisdiction of the Tanzanian Forest Service Agency, but fisheries activities in mangroves are the jurisdictional responsibility of the Ministry of Livestock and Fisheries Development.<sup>87</sup> With no specific policy to deal solely with mangrove management, conflict between forest management authorities and marine and coastal management authorities often results in inefficiencies and lost opportunities for EbA integration. Similarly in Mozambique, the management of coastal habitats falls between the Ministry of Land, Environment and Rural Development (MITADER) and the MIMAIP. The management of seagrass and coral reefs falls under MIMAIP, while the management of coastal dunes falls under MITADER.<sup>88</sup> Because mangroves are situated between land and sea they are essentially managed by both authorities. This blurred delineation of responsibilities for coastal ecosystems is a barrier to successful ownership of public EbA-related activities in the coastal zones.

### **Coastal planning is often done at the local level, where there can be limited capacity to manage and implement successful climate adaptation projects. Larger municipalities and jurisdictional districts often have greater capacity than smaller ones**

This results in unequal distribution of effective coastal resource management within a country. Local governments are often understaffed, resource constrained, and operate in departmental silos – which impacts the ability to effectively plan and implement EbA in coastal zones. Richer cities tend to have more capacity for effective coastal planning, as well as more resources for marine conservation initiatives. In South Africa, a study showed that only two metropolitan and three district municipalities (and virtually no local municipalities) had allocated staff to implement ICZM. This is a key concern because local

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<sup>87</sup> Chevallier, *Marine and Coastal Ecosystem-based Adaptation*, 29.

<sup>88</sup> Macamo, *Marine and Coastal EbA*, 28.

government has a major role to play in implementing South Africa's Integrated Coastal Management Act (2008).<sup>89</sup> A lack of EbA monitoring and evaluation skills coupled with high staff turnover rates also impedes on EbA implementation at the local level.<sup>90</sup>

### **EbA is often excluded from climate policy due to a lack of government understanding of what it is and what benefits it can provide**

Knowledge of EbA often sits with climate change practitioners, international NGOs, donors and private consultancies rather than with government entities. A lack of government understanding of what constitutes EbA and how it can provide multiple co-benefits often means that climate policy and national budget allocations do not account for EbA implementation. National governments tend to prioritise economic growth and sectors such as mining or intensive agriculture that are less compatible with EbA.<sup>91</sup> In addition, coastal and marine EbA is promoted less than terrestrial EbA interventions. Methodologies for measuring and verifying blue carbon also lag behind those in terrestrial ecosystems. Where coastal and marine EbA is identified in national climate policies in Africa, its inclusion is minimal, with little to no specificity on the type of EbA intervention required. Awareness raising and sharing best practice on coastal and marine EbA in Southern Africa will help to ensure it is well understood and accounted for in future national climate change planning and policymaking.

### **Access to finance remains a key barrier for scaling up coastal and marine EbA in Africa**

Coastal and marine EbA projects require long-term sustainable funding to cover activities such as mapping marine and coastal ecosystems, implementing protection and enforcement measures, monitoring spatial and temporal changes in the ecosystems and measuring the effectiveness of these measures.<sup>92</sup> Due to the poverty and inequality challenges facing Southern Africa, national governments lack the finance to implement such measures and therefore rely on development partners for EbA financing. This poses another challenge in that there is often limited understanding of the funding cycles of multilateral climate funds (such as the GCF), coupled with a lack of capacity for proposal development to access such funds. For example, in many African institutions, it can take up to one-and-a-half years to complete a tender process for municipal supply chains.<sup>93</sup> In addition, adaptation finance needs in Africa far exceed the amount of funding currently available. Innovative financing mechanisms and private sector investment could potentially help to close this gap if the correct regulatory environment were in place. Guidance and

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89 M Sowman and N Malan, "Review of Progress with Integrated Coastal Management in South Africa Since the Advent of Democracy", *African Journal of Marine Sciences* 40, no. 2 (2018): 121-136.

90 Hanna Reid et al., *Is Ecosystem-Based Adaptation Effective? Perceptions and Lessons Learned from 13 Project Sites* (London: IIED, 2019).

91 Reid et al., *Is Ecosystem-Based Adaptation Effective?*, 58.

92 See Pouponneau, "Financing EbA for Marine".

93 See Jessica Thorn, "Strengthening Marine and Coastal EbA in Climate Policies in Southern Africa" (Occasional Paper, SAIIA, Johannesburg, 2023).



support for such initiatives is needed. For example, support should be given to blended finance models, which often can be quite complicated to establish due to the multitude of different stakeholders involved.

### **Coastal and marine EbA initiatives may meet resistance if local communities are not consulted from project inception**

Local coastal communities often lack tenure rights and can be excluded from accessing coastal resources, either through exclusion from commercial enterprises or through the enforcement of conservation initiatives such as MPAs. To ensure that interventions do not negatively affect community livelihoods, it is important that local communities are consulted from project inception and are involved in the EbA initiatives as much as possible. If alternative livelihoods are promoted, it is important that these are not imposed, and that the traditional norms and values of communities are respected. If this is not prioritised, EbA initiatives can be ineffective and met with protest.

# Key recommendations for policymakers in SADC

- Mainstream coastal and marine EbA into national 2025 NDC revisions and identify specific pathways, targets, timeframes and responsibility of actions to ensure ownership of such initiatives.
- Identify national and regional climate, oceans and biodiversity policy engagement opportunities for the integration of coastal and marine EbA.
- Build the capacity of national and sub-national environment and oceans-related ministries on coastal and marine EbA and climate change to enhance collaboration, knowledge and skills across sectors.
- Enhance regional collaboration and best practice sharing among SADC states to establish partnerships for coastal and marine EbA.
- Develop new and strengthen existing multi-stakeholder platforms to ensure the representation of all stakeholder groupings in the decision-making process, including marginalised communities.
- Strengthen knowledge of, and action within, the policy community and private sector around opportunities for innovative financing and investment to support marine and coastal EbA.<sup>94</sup>
- Ensure local coastal communities are included in EbA initiatives from inception and that alternative livelihoods are promoted.
- Equip community-based organisations with the skills and information to actively participate in EbA policy and project design and implementation.<sup>95</sup>
- Design a regional SADC EbA strategy that accounts for similarities and differences across all coastal and island states, paying special attention to the needs and risks faced by coastal communities.

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<sup>94</sup> Chevallier, *Marine and Coastal Ecosystem-based Adaptation*. 43.

<sup>95</sup> Chevallier, *Marine and Coastal Ecosystem-based Adaptation*. 43.

# Conclusion

While implementing EbA in SADC's coastal zones presents several unique challenges, the current lack of targeted coastal adaptation options and coastal restoration initiatives will impede Africa's ability to transition toward a climate-resilient and robust development pathway.<sup>96</sup> Oceans and coasts are home to some of Africa's most important biodiversity and the source of many coastal communities' livelihoods. Mangroves, coral reefs, estuaries, coastal wetlands, salt marshes, tidal flats, seagrass beds and kelp forests provide vital ecosystem services, which, if lost, will cause extensive devastation to natural capital. This will inevitably have negative consequences for livelihoods and economic development. The health of terrestrial ecosystems – freshwater resources and agricultural land – is also intrinsically linked to that of coastal environments. Without targeted EbA interventions in the coastal zone, rising sea levels and storm surges will inevitably pollute and degrade inland ecosystems. Africa's agricultural sector, which contributes significantly to GDP and jobs, will thus be threatened due to a lack of adaptation interventions in the coastal zone.

In Southern Africa, coastal communities continue to face increased risks of climate shocks due to their exposure, vulnerability and lack of adaptive capacity. EbA initiatives can help to safeguard these communities, through targeted restoration and sustainable management, spatial planning and hybrid green-grey solutions. It is crucial to have collaborative partnerships and effective dialogue between regional, national and local government and multi-stakeholder groups such as private sector partners, NGOs and coastal communities. Collaboration between ministries working in the coastal zone and on environmental issues is also essential to overcome siloed approaches to climate responses. Community involvement and the recognition of vulnerable groups should be considered from project inception, recognising that knowledge about sustainable ecosystem management often lies at grassroot levels. Co-management approaches and inclusive multi-stakeholder engagement platforms can help to build effective relationships for coastal EbA implementation, while ensuring there is buy-in from all stakeholders involved. By establishing a regional vision for coastal and marine EbA in SADC, the inclusion of coastal and marine EbA in national and regional climate change and oceans-related policies will be promoted. This in turn will help to procure finance for targeted EbA implementation and will ensure that vulnerable coastal communities are not left behind in the transition toward sustainable and climate resilient development in Africa.

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96 Reid et al., "Jobs", 212–231.

## APPENDIX 1

# Comparative policy assessment of marine and coastal EbA in SADC's coastal and island states<sup>97</sup>

Country	Does the country's NDC specifically mention EbA or NbS?	Does the adaptation component of the NDC refer to coastal or marine habitats?	Does the NDC include any EbA-related interventions for coastal or marine environments?	Does the country's NDC or climate change or adaptation policy include clear targets for coastal or marine EbA-related interventions?	Does the country have a specific EbA strategy or policy?
Tanzania	Yes In Section 2, it states that NbS was considered when revising sectors for inclusion in adaptation and mitigation contributions.	Yes The coastal, marine environment and fisheries sector is included as a key sector.	Yes 1) Promoting sustainable livelihood diversification for coastal communities; and 2) Enhancing area-based management systems for sustainable blue economy.	Yes The <u>National Climate Change Strategy 2021-2026</u> identifies the following targets: 1) at least three to four sustainable livelihood options introduced to coastal communities by 2026; 2) at least 60% of coastal and marine managements systems with climate-informed plans by 2026; 3) at least 70% of fisheries with climate-informed management plans by 2026; 4) at least 60% of fisheries communities are engaged with community-based conservation of fisheries resources; 5) at least 50% of fishermen and women engaged in diversified livelihoods by 2026; 6) at least 3 000ha of degraded mangroves restored by 2026; and 7) nature-based tourism and new innovative tourism products contribute to at least 30% of tourism sector revenue by 2026.	No

<sup>97</sup> All NDCs refer to updated/second NDC submissions, except for Madagascar, which has only submitted one NDC in 2016.

Country	Does the country's NDC specifically mention EbA or NbS?	Does the adaptation component of the NDC refer to coastal or marine habitats?	Does the NDC include any EbA-related interventions for coastal or marine environments?	Does the country's NDC or climate change or adaptation policy include clear targets for coastal or marine EbA-related interventions?	Does the country have a specific EbA strategy or policy?
Seychelles	Yes The Adaptation Component states the intent for coastal planning and infrastructure to prioritise the consideration of 'blue' NbS for climate resilience.	Yes The Adaptation Component mostly refers to interventions in the coastal zone through the implementation of NbS.	Yes 1) Protection and monitoring of blue carbon ecosystems; 2) implementation of the Coastal Management Plan for NbS in the coastal zone; and 3) adopting an integrated Ridge-to-Reef approach.	Yes The NDC states that: 1) at least 50% and 100% of its seagrass and mangrove ecosystems will be protected by 2025 and 2030 respectively; 2) a long-term monitoring programme for seagrass and mangrove ecosystems will be established by 2025; and 3) implementation of its adopted Marine Spatial Plan and the effective management of the 30% marine protected areas within the Seychelles' EEZ.	No
Angola	No	Yes Agriculture and fisheries and the coastal zone are included as key sectors.	No	N/A	No

Country	Does the country's NDC specifically mention EbA or NbS?	Does the adaptation component of the NDC refer to coastal or marine habitats?	Does the NDC include any EbA-related interventions for coastal or marine environments?	Does the country's NDC or climate change or adaptation policy include clear targets for coastal or marine EbA-related interventions?	Does the country have a specific EbA strategy or policy?
South Africa	No	Yes Coastal settlements (urban and rural) are identified as being at risk to sea-level rise and flooding. Biodiversity is also included more broadly as a key sector.	No The NDC does, however, call for the development of climate change adaptation activities for the period 2021 to 2030 to support South Africa's 'Just transition to a climate resilient economy and society'. This is an opportunity to develop EbA projects that can absorb displaced coal mine workers through employment in restoration activities.		Yes South Africa has developed The Strategic Framework and Overarching Implementation Plan for Ecosystem-based Adaptation (2016-2021) as well as EbA Guidelines (2017) to provide clarity about the scope of EbA, and criteria for identifying appropriate EbA projects and safeguards needed for specific user groups. It is currently being revised and coastal and marine ecosystems were identified as a gap in the original.
Namibia	Yes In the section on 'Blue carbon opportunities in adaptation', blue carbon ecosystems are identified as great potential for NbS to mitigate climate change.	Yes The coastal zone is identified as a key sector.	Yes 1) Rehabilitate wetlands and estuaries; and 2) identify and proclaim marine protected areas to conserve biologically sensitive sites.	Yes The NDC includes targets to: 1) protect the 1 500km coastline beaches against erosion, which will include the prioritisation of EBSAs.	No

Country	Does the country's NDC specifically mention EbA or NbS?	Does the adaptation component of the NDC refer to coastal or marine habitats?	Does the NDC include any EbA-related interventions for coastal or marine environments?	Does the country's NDC or climate change or adaptation policy include clear targets for coastal or marine EbA-related interventions?	Does the country have a specific EbA strategy or policy?
Mauritius	Yes  In the Adaptation Component, the NDC states that the current National Climate Change Policy Adaptation Framework (NCCPAF) (2021) focuses on the potential of NbS for adaptation and promotes EbA.	Yes  Tourism and coastal zone management, climate smart fisheries and blue economy, and marine and terrestrial biodiversity resilience are included as key sectors.	Yes  1) Improved management of marine and terrestrial protected areas and expansion of protected area network including rehabilitation of wetlands, seagrass, mangrove plantation, increase in tree coverage areas and coral reef rehabilitation and farming;  2) development of sustainable landscape management and EbA or NbS for Rodrigues;  3) establishment of an integrated framework for the management of fisheries founded on the blue economy concept, which includes coastal zone management and marine biodiversity conservation;  4) resilient artisanal fishery with policy on marine co-management of resources and measures for off-lagoon fishing for Rodrigues;  5) awareness raising, enhanced rehabilitation and strengthened regulatory framework for the protection of beaches, dunes and vegetation;  6) rehabilitation of degraded coastline;  7) development of a coral restoration strategy; and  8) restoration of lagoon in Rodrigues through the planting of corals.		No

Country	Does the country's NDC specifically mention EbA or NbS?	Does the adaptation component of the NDC refer to coastal or marine habitats?	Does the NDC include any EbA-related interventions for coastal or marine environments?	Does the country's NDC or climate change or adaptation policy include clear targets for coastal or marine EbA-related interventions?	Does the country have a specific EbA strategy or policy?
Mozambique	No	Yes Infrastructure, urban areas, settlements and tourist zones and coastal zones are grouped together in the adaptation component. Agriculture and fisheries are also grouped together as a key sector.	Yes 1) Regeneration of mangroves and implementation of protective measures for seaweed and seagrass, corals and other breeding and feeding areas for fish; and 2) development of conservation and coastal protection practices.	Yes The NDC includes targets for mangrove restoration and ecosystem management: 1) under the Initiative for Transparency for Climate Action, Mozambique developed the National Strengthened Transparency Framework (QNFTM). Under this framework a target has been set to restore 5 000ha of mangroves by 2025; and 2) by 2035, place at least 20% of ecosystems critically affected by climate change under adaptive ecosystem management.	No
Comoros	No	Yes Coastal zones included as a key sector.	Yes 1) Monitoring and restoration of coastal and marine ecosystems.		No



Country	Does the country's NDC specifically mention EbA or NbS?	Does the adaptation component of the NDC refer to coastal or marine habitats?	Does the NDC include any EbA-related interventions for coastal or marine environments?	Does the country's NDC or climate change or adaptation policy include clear targets for coastal or marine EbA-related interventions?	Does the country have a specific EbA strategy or policy?
DRC	<p>Yes</p> <p>The section on 'Land use planning policy and land tenure security', states that taking into account the implementation of NbS, the DRC will ensure synergies with land use planning and land tenure security. The NDC also includes a whole section on NbS, outlining the commitments it has made to biodiversity restoration, particularly for the forestry sector.</p>	<p>Yes</p> <p>Disaster risk reduction and coastal zone protection is included as a key sector.</p>	<p>Yes</p> <p>1) Support for activities resilient to climate change that generate household income; and</p> <p>2) implementation of erosion control measures in the coastal area, especially the area between Banana and Nsiamfumu.</p>	<p>Yes</p> <p>The NDC includes targets to:</p> <p>1) restore 8 million ha of degraded land under the Bonn Challenge; and</p> <p>2) by 2030, have at least 30% of national areas under protected status.</p>	<p>No</p>

Country	Does the country's NDC specifically mention EbA or NbS?	Does the adaptation component of the NDC refer to coastal or marine habitats?	Does the NDC include any EbA-related interventions for coastal or marine environments?	Does the country's NDC or climate change or adaptation policy include clear targets for coastal or marine EbA-related interventions?	Does the country have a specific EbA strategy or policy?
Madagascar	Yes The Adaptation Component under 'Actions to be taken between 2020 and 2030' states, 'implement ecosystem-based adaptation to cope with sand-hill progression (multiple causes but phenomena aggravated by climate change) by leveraging research findings and best practices.'	Yes The Adaptation Component identifies priority actions in the coastal and marine sector to be undertaken by 2030. However, the adaptation component is not well developed, and key sectors are not explicitly mentioned in the NDC. Given that this is the first NDC, key sectors, and priority adaptation intervention per sectors are expected to be outlined in the second NDC revision.	Yes Reinforcement of natural protection and reduction of the vulnerability of coastal, inshore and marine areas affected by coastal erosion and receding shorelines.	Yes The NDC includes targets to restore 45 000ha of forests and mangroves by 2030.	No

## APPENDIX 2

# Other examples of best practice from the region

### Inclusion of EbA in climate and biodiversity policies

#### *Seychelles*

The Wetlands Policy and Action Plan 2019-2022 was developed under the GEF-funded project, 'Ecosystem-Based Adaptation through South-South Cooperation (EBA-SSC)' and the Adaptation Fund project, 'Ecosystem-based Adaptation in the Seychelles'. Policy objective three calls for the restoration and rehabilitation of wetlands to increase climate change resilience, among other outcomes. EbA approaches are referenced throughout the policy, and a detailed action plan is included that identifies specific activities and timeframes for implementation. The policy is currently being reviewed. The government has also begun rolling out community education campaigns in alignment with Wetlands Day, which is commemorated each year on 2 February.

#### *South Africa*

The DFFE is currently developing a Coastal Adaptation Response Plan that aims to identify critical interventions, such as coastal and marine EbA, the development of a resource mobilisation strategy, an implementation plan, and a monitoring and evaluation component.<sup>98</sup>

### Inclusion of communities in climate change policies

#### *DRC*

While not coastal or marine related, the DRC has made significant strides in recognising the rights of Indigenous communities regarding forest tenure. The 2002 Forestry Code recognises the rights of communities to forest concessions by entrusting them with partial or full rights to conserve and manage forest resources. In 2018, a ministerial order on reducing emissions from deforestation and forest degradation (REDD+) recognised that forest carbon stocks are property of the state, but that units of emissions reduction are owned by those who invest in them, including communities.<sup>99</sup> In 2022, the government also adopted a law to promote and protect the rights of Indigenous Pygmy peoples.

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98 DFFE, "Climate Change Coastal Vulnerability Assessment: Oceans and Coast Perspective", Presentation.

99 See Macamo, "Governance and Community Participation"

## *Mozambique*

A community management plan for the Limpopo Estuary is currently being developed to improve mangrove management through restoration, community empowerment and the generation of baseline information to support decision making. A Natural Resource Management Council and a Women Cooperative for Fish Trade have been established. A series of workshops and meetings with community members was held to inform the policy establishing rules for mangrove use, penalties for rule-breaking, restoration targets, closure areas and periods and enforcement.

## **Innovative financing mechanisms**

### *Tanzania*

A Local Climate Adaptive Living Facility has been developed by the UN Capital Development Fund, which aims to assist local governments in securing grants for locally led climate change adaptation initiatives. Tanzania is part of this global initiative, which uses innovative Performance-Based Climate Resilience Grants to channel climate finance from national to local government. These grants allow local governments to incorporate climate change into their planning and budgeting process, and give them access to finance from the GCF and Adaptation Fund.

### *Namibia*

Namibia (through its accredited entity the Environmental Investment Fund) has been successful in procuring finance from the GCF through its Simplified Approval Process (SAP). The SAP was created to enable developing countries access to finance that is urgently needed to address climate change risks. Projects proposed through the SAP may not exceed \$10 million and should exhibit low-risk interventions that display a strong paradigm-shift potential. The proposal requires much simpler documentation and the approval process is a lot faster. In 2018, the GCF approved a project to support EbA practices for smallholder farmers that improve rangeland practices in Sesfontein, Fransfontein and Warmquelle. Proven success of obtaining finance through the SAP shows potential for future funding for marine and coastal EbA. Other countries in SADC should also look to learn from the Namibia's success at securing funding through the SAP.

## **Community partnerships to support EbA initiatives**

### *Angola*

In 2019, the NGO Otchiva was established by a group of volunteers with the aim of restoring degraded mangroves along the coastline. In its first year, the NGO grew to more than 500 volunteers and secured funding from both the government and international funders. Otchiva works with local communities to restore and clean surrounding areas and host training on cataloguing important biodiversity for conservation. More than 1 million mangroves have been planted through Otchiva initiatives.



Jan Smuts House, East Campus, University of the Witwatersrand  
PO Box 31596, Braamfontein 2017, Johannesburg, South Africa  
Tel +27 (0)11 339-2021 • Fax +27 (0)11 339-2154  
[www.saiia.org.za](http://www.saiia.org.za) • [info@saiia.org.za](mailto:info@saiia.org.za)