

# SAVING OVR MANGROVES IN KENYA, TANZANIA MOZAMBIQVE AND MADAGASCAR

Where do we stand?











### CONTENTS

- 3 Executive summary
- 4 Introduction
- 6 Mangroves in the Western Indian Ocean
- 9 Spotlight on Kenya
- 13 Spotlight on Madagascar
- 17 Spotlight on Mozambique
- 21 Spotlight on Tanzania
- 25 Raising collective political ambition
- 30 Conclusion what's next for mangroves in the WIO region?



### EXECUTIVE SUMMARY MANGROVES, OVR ROOTS OF HOPE IN THE WESTERN INDIAN OCEAN REGION

Mangrove forests are some of the most complex and awe-inducing ecosystems in the world. Arising in the intertidal zone between land and sea, these miraculous forests grow in challenging conditions. The trees take root in soils that are waterlogged and oxygen-poor, alternately submerged and exposed to the air as the tide rises and falls. In these seemingly impossible circumstances, they not only survive but thrive. And in turn, they help us thrive too.

About 5% of the 14.5 million hectares of mangroves worldwide are located in the Western Indian Ocean (WIO) region.<sup>1</sup> Within that region, 99% of mangroves - some 745,518 ha - are found in Kenya, Madagascar, Mozambique and Tanzania.<sup>2,3</sup>

Mangrove forests provide immense value to the coastal communities within these countries. In addition to being a source of food providing nurseries and habitat for fish and crustaceans amongst a wealth of other species - mangroves maintain the livelihoods of hundreds of thousands of people across the region, supporting industries such as fishing, beekeeping and tourism. The unmatched high density of mangrove wood is often relied on for fuel and for construction materials. In addition, mangroves perform essential ecosystem services such as water filtration, nutrient cycling, carbon sequestration, and shoreline protection – acting as a buffer for storms by trapping sediment and dissipating waves.

1 Spalding, M.D. et al, 2021. The State of the World's Mangroves 2021. Global Mangrove Alliance.

- 2 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.
- 3 Kairo, J., Langat, J., Mwihaki, L., Wanjiru, A., 2022. Towards a Regional Mangrove Vision and Action Plan for the Western Indian Ocean: Synthesis of Information, Policy, Practices and Recommendations. WWF Madagascar.

Mangroves are superheroes, a triple dividend of resilience, biodiversity gain and people. Protecting and conserving them is essential for achieving multiple goals and targets towards the 2050 vision for biodiversity. They are our roots of hope it is time that their importance is widely recognised.

Minna Epps, Head of Ocean Team, IUCN Centre for Conservation Action

This report offers an overview of the work by the Save our Mangroves Now! (SOMN) initiative in the region to date, bringing together data on extent, loss and gains, and the socio-economic value of mangroves in the region, as well as governance challenges and policy opportunities. We hope this will support national efforts and inform the development of a regional mangrove action plan in the Western Indian Ocean region, enabling coordinated and collective action on mangrove conservation and restoration. In addition, we created the guiding principles on sustainable mangrove ecosystem management and aspire for them to guide the design of collective action at the national and regional level in the Western Indian Ocean region and beyond.

We find ourselves at a critical moment in the global effort to secure a healthy and prosperous future for people and nature, as countries around the world – including those spotlighted in this report – come together to take stock of their national efforts towards the global agreement on limiting global warming and adopting a global action plan for restoring nature by 2030. Now more than ever, it is essential that actors at all levels - from local to regional to international - pool knowledge and resources in order to reach our collective goals. We are encouraged to witness the leadership of the Western Indian Ocean region to protect these precious ecosystems that sustain life in myriad ways, and we hope it will inspire other regions to unite under a shared vision to protect and restore mangroves: **our roots of hope**.

### INTRODUCTION

As Nature-based Solutions, mangroves have remarkable potential to address the interlinked climate and biodiversity crises. Combined with deep emission cuts across sectors, including fossil fuels, mangroves can provide direct benefits for climate mitigation and adaptation.

#### HERE ARE JUST A FEW WAYS IN WHICH MANGROVES SUPPORT US AND OUR NATURAL WORLD:

#### THEY HELP MITIGATE CLIMATE CHANGE

Mangroves convert  $CO_2$  to organic carbon at higher rates than almost any other habitat on earth, storing it for centuries in both the living plants and the thick peaty soils in which they grow.

#### THEY PROTECT COASTAL COMMUNITIES

Mangroves stabilise coastlines by holding sediments to prevent erosion and act as safety nets and permeable dams against storms and surges – attenuating waves and holding the land together.

#### THEY ARE A HAVEN FOR BIODIVERSITY

Mangroves are habitats for a staggering number of plant, fish, mollusc, crustacean, amphibian, insect and mammal species, with mangrove forests sheltering up to 341 threatened species across the world.<sup>4</sup>

### • THEY SUPPORT THE ECOLOGICAL AND SOCIO-ECONOMIC WELLBEING OF GLOBAL COASTAL COMMUNITIES

Mangroves provide food in abundance – such as mud-crabs, oysters, shrimp and banana prawns – polewood for fish traps, rot-resistant timber for homes, fuel for cooking and high-grade charcoal, and offer health benefits by purifying the waters that flow through their roots.<sup>5</sup>

### CLIMATE



Mangroves store

Mangroves prevent



#### COASTAL PROTECTION



**>\$b5b** in property damages and reduce flood risk to some 15m people every year.<sup>2</sup>

#### CONTRIBUTION TO COASTAL COMMUNITIES



people depend on mangroves for their livelihood.<sup>3</sup>

In the Western Indian Ocean, mangroves have the potential to contribute \$10.1bn each year to local economies.

 Donato DC, Kauffman JB, Murdiyarso D, Kurnianto S, Stidham M, Kanninen M. Mangroves among the most carbon-rich forests in the tropics. Nature Geoscience. 2011;4(5):293-7.

<sup>2</sup> Spalding, Mark D and Leal, Maricé (editors), 2021 The State of the World's Mangroves 2021. Global Mangrove Alliance.
 <sup>3</sup> UNEP. The Importance of Mangroves to People: A Call to Action. UNEP-WCMC (United Nations Environment Programme – World Conservation Monitoring Centre, 2014).

4 Spalding, M.D. and M. Leal (Eds.), 2021. The State of the World's Mangroves 2021. Global Mangrove Alliance.

5 Costanza, Robert and Folke, Carl, 2017. Valuing Ecosystem Services With Efficiency, Fairness and Sustainability as Goals' in Nature's Services: Societal Dependence On Natural Ecosystems. Island Press.

### INTRODUCTION



In spite of this, mangrove habitats are severely under threat. More than a third (35%) of all mangrove forests have disappeared in the last half century.<sup>6</sup> According to the mapping data of the Global Mangrove Watch, the estimated mangrove decline worldwide between 1996 and 2020 was a net loss of 5,302 km<sup>2</sup>. As a result, the total global mangrove area left was 147,359 km<sup>2</sup>. Direct human impact – for example processes such as conversion to farmland, aquaculture and urbanisation – is responsible for over 60% of this decline.<sup>7</sup>

#### MANGROVES IN THE WESTERN INDIAN OCEAN

In 2020, there were more than 14.5 million hectares of mangroves worldwide, collectively storing the carbon equivalent of 21 gigatons of CO<sub>2</sub>. About 5% of these tidal forests are located in the Western Indian Ocean (WIO) region, including in the four countries spotlighted in this report: Kenya, Madagascar, Mozambique and Tanzania.<sup>8</sup> These countries together harbour 99% of WIO mangroves.<sup>9</sup>

According to 2020 data from Global Mangrove Watch, the current extent of mangroves in the WIO region countries of Kenya, Madagascar, Mozambique and Tanzania is 745,518 ha, of which 41% (302,735 ha) is found in Mozambique, 37% (277,567 ha) in Madagascar, 15% (110,787 ha) in Tanzania and 7% (54,430 ha) in Kenya. This has fallen from 775,675 ha in 1996, representing a net loss of 30,156 ha (3.9%)\* over 24 years (1996-2020).<sup>10</sup> Given the density of mangroves in the region, their protection and restoration are highly significant in achieving national and international targets for carbon reduction and climate change mitigation.

\*Close-up inspection of satellite imagery of the Western Rufiji Delta in Tanzania and Manambolo in Madagascar suggests that an additional loss of 5,700 ha of 'hinterland' mangrove vegetation occurred in the transitional zone towards terrestrial (inland) areas over this period, but this was not classified as 'mangrove loss' by the Global Mangrove Watch algorithm.

#### LEARN MORE

- Roots of Hope: The socioeconomic value of mangroves in the Western Indian Ocean region
- The State of Mangroves in the Western Indian Ocean, 2022

- 7 Spalding, M.D. et al, 2021. The State of the World's Mangroves 2021. Global Mangrove Alliance.
- 8 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.
- 9 Kairo, J., Langat, J., Mwihaki, L., Wanjiru, A., 2022. Towards a Regional Mangrove Vision and Action Plan for the Western Indian Ocean: Synthesis of Information, Policy, Practices and Recommendations. WWF Madagascar.
- 10 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.

<sup>6</sup> Polidoro, B. A., et al, 2010. The Loss of Species: Mangrove Extinction Risk and Geographic Areas of Global Concern. PLOS One.

### MANGROVES IN THE WESTERN INDIAN OCEAN

	For the communities of the WIO region, mangrove forests are essential ecosystems bound up with livelihoods, not only preserving coastal homes and mitigating the effects of climate change, but generating wealth through natural resources such as timber, fuelwood, fish, honey, and traditional medicines. Mangroves have unquantifiable benefits too, as spiritual sites, and scenic and therapeutic destinations. The benefits provided by mangroves in Kenya, Madagascar, Mozambique and Tanzania are summarised in the following table.		
F n	SERVICES PROVIDED	MATERIALS PROVIDED	INDVSTRIES PROVIDED
	<ul> <li>Shoreline protection</li> <li>Carbon sequestration</li> <li>Habitats and nurseries for fish and other marine life</li> <li>Removal of excess nutrients and pollutants from contaminated water sources</li> <li>Nutrient cycling</li> </ul>	<ul> <li>Timber and polewood</li> <li>Wood for fuel</li> <li>Honey</li> <li>Crabs, prawns, fish and bivalves</li> <li>Fodder for livestock</li> <li>Tannins (from the bark of mangroves) traditionally used to cure nets to extend their longevity</li> <li>Traditional medicines</li> <li>Wild silk</li> <li>Charcoal</li> <li>Leaves</li> </ul>	<ul> <li>Fisheries</li> <li>Ecotourism and recreation</li> <li>Honey production</li> <li>Salt extraction</li> </ul>

Report



Total mangrove coverage 110,787 HA

Estimated economic value
US\$ 2.1 BILLION
TZS 4.8 trillion

Area available for restoration **3,611 HA** 

Annual country  $CO_2$  emissions stored in mangrove areas 8%

## MOZAMBIQVE

Total mangrove coverage **302,735 HA** 

Estimated economic value US\$ 7 BILLION\* MZN 446.8 billion

Area available for restoration **25,899 HA** 

Annual country  $CO_2$  emissions stored in mangrove areas 39%



Annual country CO<sub>2</sub> emissions stored in mangrove areas 3%

### MADAGASCAR

Total mangrove coverage 277,567 HA

#### Estimated economic value US\$ 82.6 MILLION MGA 618.6 trillion †

Area available for restoration **8,039 HA** 

Annual country CO<sub>2</sub> emissions stored in mangrove areas 41 - 74% <sup>1†</sup>

\* This value is based on averages from the Limpopo Estuary and the Zambezi Delta f This excludes fload protection total annual fossil fuel emission of Madagascar, which is in the order of 3 to 4 million t CO2. Further information in nd de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.

SAVING OUR MANGROVES IN KENYA, TANZANIA MOZAMBIQUE AND MADAGASCAR: WHERE DO WE STAND? Report

### SAVE OUR MANGROVES NOW!

The Save Our Mangroves Now! (SOMN) initiative has been working to protect Western Indian Ocean mangroves since its establishment in 2016. Bringing together governments, conservation specialists and coastal communities, the initiative aims to reverse the decline of WIO mangroves to restore biodiversity, protect livelihoods and mitigate against the impacts of the climate crisis. It is a joint initiative by the German Federal Ministry for Economic Cooperation and Development (BMZ), World Wide Fund (WWF), the International Union for Conservation of Nature (IUCN) and Wetlands International.

Throughout its six years of operation, the SOMN initiative has produced a wealth of valuable assessments and publications relating to the state of WIO mangroves, the benefits they bring to communities, and the threats these ecosystems are facing. This synthesis report provides an overview of this material, summarising the current state of mangroves in Kenya, Madagascar, Mozambique and Tanzania, before giving a synopsis of the current policy landscape both regionally and internationally, and identifying opportunities for further protection of these precious ecosystems. It is hoped that this report will provide a succinct overview of progress so far, from which readers can be signposted to other SOMN publications for further reading.

The next chapter will provide an overview of mangrove conservation in Kenya, Madagascar, Mozambique and Tanzania, encompassing mangrove extent, loss, socio-economic value, regeneration potential, and modes of governance. The summaries will highlight both the progress made and the challenges faced by each country so far, and the steps being taken to strengthen conservation and regeneration efforts.

## SPOTLIGHT ON KENYA

54,430 ha \$85 million mangrove cover remaining in Kenya<sup>1</sup>

**3,351**ha area available for

restoration<sup>2</sup>

# 77 Mt CO<sub>2</sub>e

estimated total carbon currently stored in Kenya's mangrove areas<sup>3</sup>

the estimated annual economic value of mangrove goods and services in Kenya<sup>₄</sup>

### 3% percentage of Kenya's total yearly fossil fuel CO<sub>2</sub> emissions stored in the country's mangroves⁵

# 800,000

number of artisanal fishermen along Kenya's coast who depend on mangroves for their livelihood<sup>6</sup>

#### EXTENT, LOSSES AND GAINS

With its 1,420 km long coastline, Kenya is home to the fourth largest extent of mangroves in the WIO region, representing about 7% of WIO mangroves. The current extent of mangroves in Kenya (based on data from 2020) is estimated to be 54,430 ha.<sup>11</sup> Between

66%<sup>12</sup> and 74%<sup>13</sup> of Kenya's mangrove forests occur in Lamu and Tana River. Here, the protective influence of barrier islands coupled with a large estuary has resulted in an abundance of mangroves that cover a combined total of 40,224 ha.<sup>14</sup> Smaller mangrove formations occur in the mouths of semi-perennial and seasonal coastal rivers in Vanga, Funzi, and Gazi Bay, as well as in creeks such as Tudor, Port-Reitz, Kilifi and Mida Creek.<sup>15</sup>

Kenya experienced an overall net loss of 1,139 ha (2%) to its mangroves over 20 years between 1996 and 2016. Since then there have been significant gains of 578 ha due to natural expansion (following sedimentation) and restoration efforts at a number of sites.<sup>16</sup>

#### SIGNIFICANCE FOR BLUE CARBON AND BIODIVERSITY

According to the 2022 State of Mangroves in the Western Indian Ocean report, the total mangrove area of Kenya is estimated to sequester 2-3% of the country's total annual emissions from fossil fuel, which are in the order of 16 to 18 million tCO<sub>2</sub> per year.<sup>17</sup> Hotspots of blue carbon include the mangroves of Lamu and Kwale districts, which possess high amounts of above-ground mangrove biomass.<sup>18</sup>

Meanwhile, Kenyan mangroves are home to significant animal biodiversity. This includes two critically endangered sawfish species<sup>19</sup> and the endemic Tana River Red Colobus monkey.<sup>20</sup> The Tana Delta is critically significant as an Important Bird Area (IBA) and Ramsar Site with at least 20 waterbird species exceeding the Ramsar 1% global population criterion. One study reported 89 species of fish and crustaceans from four sites in the Tana Delta.<sup>21</sup>

- 11 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International
- 12 Government of Kenya, 2017. Mangrove Ecosystem Management Plan 2017-2027. Kenya Forest Service, Nairobi, Kenya
- 13, 14 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International
- 15 Bosire, J.O., J.K.S. Lang'at, B. Kirui, J.G. Kairo, L.M. Mugi and A.J. Hamza, 2016. Mangroves of Kenya. Chapter 2 in: Bosire J.O. et al. (eds.), Mangroves of the Western Indian Ocean: Status and Management. WIOMSA, Zanzibar Town, pp. 15-30.
- 16, 17, 18 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.
- 19 Samoilys, M., M. Pabari, T. Andrew, G.W. Maina, J. Church, A. Momanyi, B. Minei, M. Monjane, A. Shah, M. Menomussanga and D. Mutta, 2015. Resilience of Coastal Systems and Their Human Partners in the Western Indian Ocean. Nairobi, Kenya: IUCN ESARO, WIOMSA, CORDIO and UNEP Nairobi Convention.
- 20 Mbora, D. and Meikle, D., 2004. The value of unprotected habitat in conserving the critically endangered Tana River red colobus (Procolobus rufomitratus). Biological Conservation, 120(1), .91-99
- 21 Manyenze, F., C.N. Munga, C. Mwatete, H. Mwamlavya and J.C. Groeneveld, 2021. Small-scale fisheries of the Tana Estuary in Kenya. WIO Journal of Marine Science Special Issue 1 / 2021: 93-114.

1,2,3,5 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.

- 4 Save Our Mangroves Now!, 2021. The socioeconomic value of mangroves in the Western Indian Ocean region, 2021, WWF, IUCN and Wetlands International
- Manzi, H. and V.C. Kirui, 2021. Assessment of the socio- economic role of mangroves and their conservation framework in Kenya. International Union for Conservation of Nature (IUCN) and Geo Spatial Research International, Project Report, March 2021.

SAVING OUR MANGROVES IN KENYA, TANZANIA MOZAMBIQUE AND MADAGASCAR: WHERE DO WE STAND? Report



### SPOTLIGHT ON KENYA

#### THE SOCIO-ECONOMIC IMPORTANCE OF MANGROVES IN KENYA

Mangroves are fundamental to the Kenyan economy, providing direct and indirect socio-economic, ecological, environmental, cultural, scientific and educational value.

The fishing industry is particularly reliant on healthy mangrove ecosystems. More than 85% of fishing activities along the Kenyan coast are carried out by artisanal fishermen in the shallow inshore areas within and adjacent to the mangroves.<sup>22</sup> In total, around 800,000 people depend on mangrove-associated fisheries for their livelihoods.<sup>23</sup> Kenya's US\$ 3 million prawn trawling industry is also highly reliant on mangroves, with the forests providing key spawning grounds for prawns.<sup>24, 25, 26</sup>

Critically, mangrove forests also protect the country from tropical storms and coastal flooding, providing an important first line of defence against shoreline erosion. The mangroves of the Tana Delta alone have been estimated to save US\$ 4.6 million per year in terms of re-establishment and maintenance expenditures avoided for coastal protection, according to the World Bank.<sup>27</sup>

Taking into account the range of critically important goods and services they provide to people living in the country, Kenyan mangroves have been estimated to provide KES 9.4 billion (equivalent to US\$ 85 million) in annual net benefits to the national economy.<sup>28</sup>

- 22 Bosire, J.O., J.K.S. Lang'at, B. Kirui, J.G. Kairo, L.M. Mugi and A.J. Hamza, 2016. Mangroves of Kenya. Chapter 2 in: Bosire J.O. et al. (eds.), Mangroves of the Western Indian Ocean: Status and Management. WIOMSA, Zanzibar Town, pp. 15-30.
- 23 Manzi, H. and V.C. Kirui, 2021. Assessment of the socio- economic role of mangroves and their conservation framework in Kenya. International Union for Conservation of Nature (IUCN) and Geo-Spatial Research International, Project Report, March 2021.
- 24 Crona, B.I. and P. Rönnbäck, 2005. Use of replanted mangroves as nursery grounds by shrimp communities in Gazi Bay, Kenya. Estuarine, Coastal and Shelf Science 65: 535-544.
- 25 Abila, R., 2010. Economic evaluation of the prawn fisheries of the Malindi-Ungwana Bay along Kenya's coast. Final Report submitted to Kenya Fisheries Department, February 2010.
- 26 Fondo, E.N. and J.O. Omukoto, 2021. Observations of industrial shallow-water prawn trawling in Kenya. In: E.S. Kappel et al. (Eds), Frontiers in Ocean Observing: Documenting Ecosystems, Understanding Environmental Changes, Forecasting Hazards. Supplement to Oceanography 34(4). Pp. 44-45. https://doi.org/10.5670/oceanog.2021.supplement.02-17.

#### THE RESTORATION POTENTIAL OF MANGROVES IN KENYA

Kenya has at least 3,341 ha of degraded mangrove area available for restoration.<sup>29</sup> Most mangrove restoration projects in Kenya have embraced a participatory approach by working through locally established Community Forest Associations.<sup>30, 31</sup> This model appears to have made a notable difference: Global Mangrove Watch data indicates that total mangrove cover in Kenya has increased by some 578 ha between 2016 and 2020,<sup>32</sup> and 300 ha since 2015. Nevertheless, there is still progress to be made. It is essential that the Kenya Forest Service (in collaboration with other stakeholders) is able to fully implement its National Mangrove Ecosystem Management Plan for 2017-2027, as well as develop a plan for mangrove rehabilitation in Kenya to ensure that full regeneration potential is met.

#### **GOVERNANCE OF KENYA'S MANGROVE FORESTS**

Kenya's mangroves are under increasing threat from both natural and manmade causes, and destruction is disproportionately higher in areas of urbanisation. Major threats include overexploitation of timber, and an overreliance on mangroves for fuel because of a lack of affordable alternatives. Pollution from land-based sources, and conversion of mangrove areas to other land uses such as salt mining, settlements, or port developments, are also contributing to the decline of mangroves in Kenya.

This array of threats makes effective governance of mangrove ecosystems essential to their survival. Mangroves in Kenya are legally protected as public forests by various legal frameworks, including Proclamation No. 44 (1934), Legal notice No. 174 (1964), and the Forest Conservation and Management (FCM) Act, 2016. Kenya Forest Service oversees overall management of mangroves in the country. Other State agencies such as Kenya Wildlife Service, Kenya Fisheries Service and National Museums of Kenya also have legal mandate to protect this ecosystem. Kenya's National Mangrove Management Plan (2017-2027) aims to enhance conservation for climate adaptation and sustainable use of mangrove forests over a decade.<sup>33</sup> Some 46% (24,924 ha) of all mangroves in Kenya are within protected areas. Kenya Forest Service has embraced a participatory forest management approach where mangrove areas are co-managed by local Community Forest Associations, which aim to regulate human activities affecting mangrove areas sustainably through zonation schemes with recognition of tenure rights. Whilst this is a promising model, limited local capacity has slowed progress.<sup>34</sup>

27 World Bank GEF, 2002. Development and protection of the coastal and marine environment in sub-Saharan Africa. Regional consolidated analysis of the first phase of the GEF MSP sub-Saharan Africa Project (GF/6010- 0016). Washington, DC: World Bank.

- 28 Manzi, H. and V.C. Kirui, 2021. Assessment of the socio- economic role of mangroves and their conservation framework in Kenya. International Union for Conservation of Nature (IUCN) and Geo-Spatial Research International, Project Report, March 2021.
- 29 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.
- 30 Kairo, J.G., F. Dahdouh-Guebas, J. Bosire and N. Koedam, 2001. Restoration and management of mangrove systems with a special reference on East Africa. South African Journal of Botany 67: 383-389.
- 31 WWF, 2022. Public-private-people partnerships to save coastal Kenya forests. https://www.wwfkenya.org/public\_private\_people\_partnerships\_to\_save\_coastal\_kenya\_forests/ [accessed 2 September 2022]
- 32 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.
- 33 GoK, 2017. National Mangrove Ecosystem Management Plan. Kenya Forest Service, Nairobi, Kenya. American Journal of Transplantation 18(1):115.
- 34 Manzi, H. and V.C. Kirui, 2021. Assessment of the socio- economic role of mangroves and their conservation framework in Kenya. International Union for Conservation of Nature (IUCN) and Geo-Spatial Research International.

### SPOTLIGHT ON KENYA

With the above roadblocks in mind, governance of mangroves in Kenya could be improved with the following actions:<sup>35</sup>

#### 1. IMPROVING PLANNING AND MANAGEMENT:

In 2017, the Kenya Forest Service (KFS) developed the National Mangrove Ecosystem Management Plan 2017-2027 to complement site-specific management plans, but the impact of the plan on mangrove ecosystems is yet to be clarified. In addition, management planning is not well aligned with land-use planning frameworks.

#### 2. HIGHLIGHTING MANGROVES IN POLICIES AND LEGISLATION:

Mangroves are not explicitly referenced in the main legal tools for conservation in Kenya. They are only included indirectly with respect to their locations between high and low water marks. This means that they fall through the cracks, as they are not seen as priorities under any regime.

#### 3. ENSURING ASSESSMENT OF IMPACTS:

New infrastructure projects and other activities that threaten mangroves are legally required to undergo an impact assessment process. However, these processes often do not sufficiently consider mangrove impacts, resulting in damaging and costly projects being approved.

#### 4. BUILDING INSTITUTIONAL COORDINATION:

There is a lack of effective coordination between the counties, KFS and the Kenya Wildlife Service (KWS) in mangrove management. The implementation structure proposed in the Mangrove Ecosystem Management Plan has not been realised.

#### 5. INVOLVING COMMUNITIES FURTHER IN DECISION-MAKING:

Allowing further Community Forest Associations (CFAs) to manage mangroves under management agreements signed with KFS, and enabling fisheries actors involved in Beach Management Units (BMUs) to support management of activities affecting mangrove areas, will enhance participatory approaches to mangrove management and improve communication between stakeholders.

35 Save Our Mangroves Now, 2019. Kenya policy brief: How can the legal and policy framework be strengthened to ensure sustainable use and conservation of mangroves?



#### LEARN MORE

- Assessment of the socio-economic role of mangroves and their conservation framework in Kenya (2021)
- Kenya policy brief: Linking the value of mangroves to conservation efforts in Kenya (2021)
- The State of Mangroves in the Western Indian Ocean (2022)
- <u>Tangled Roots and Changing Tides: Mangrove Governance</u> For Conservation And Sustainable Use (2019)
- <u>Kenya policy brief: How can the legal and policy</u>
   <u>framework be strengthened to ensure sustainable use and</u>
   <u>conservation of mangroves? (2019)</u>
- Save Our Mangroves Now: Local community voices in mangrove conservation in Kenya (2021)

## MANGROVE MESSENGER

### Zulfa Hassan Monte

Zulfa is the Chairwoman of the Mtangawanda Restoration Women's Group, in Lamu County, Kenya. In just four years they have directly planted over 61,000 mangroves. An additional 100 hectares are being restored by enhancing community policing of unregulated exploitation.



I would like to tell the government that the people of Lamu rely on mangroves... Without mangroves we wouldn't have fish. Without mangroves, we would be in danger. So for these reasons, I would like to advise the government to hold our hands and help us.

Zulfa Hassan Monte Conservationist Lamu County, Kenya

HEAR MORE FROM ZULFA

## SPOTLIGHT ON MADAGASCAR

mangrove cover remaining

in Madagascar<sup>1</sup>

**8,039**<sub>ha</sub> area available for restoration<sup>2</sup>

# **303**Mt CO<sub>2</sub>e

estimated total carbon currently stored in Madagascar's mangrove areas<sup>3</sup>



the per-year contribution made to Madagascar's economy by mangroves<sup>4</sup>

number of people in coastal areas whose livelihoods are sustained by mangroves<sup>5</sup>

## 41<sub>to</sub>74%

percentage of Madagascar's total yearly fossil fuel CO<sub>2</sub> emissions stored in the country's mangroves<sup>6</sup>

- 1,2,3,5 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.
- WWF Madagascar, 2021. Évaluation du rôle socio-économique des mangroves et de leur cadre de conservation à Madagascar. This excludes flood protection
- Rabemananjara, Z.H., A. Rakotosoa and A.A.N. Ratosovon, 2021. Assessment of socio-economic role of mangroves and their conservation framework in Madagascar. Technical Report profiling the socioeconomic role of mangroves. "BMZ-MG204200 Save Our Mangroves Now! 2.0"; Réf: 69/CTR-S/ FY21/TNR, June 2021, 94 pp. Based on total annual fossil fuel emission of Madagascar, which is in the order of 3 to 4 million t CO2 Further information in Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean, WWF, IUCN and Wetlands International.

SAVING OUR MANGROVES IN KENYA, TANZANIA MOZAMBIQUE AND MADAGASCAR: WHERE DO WE STAND? Report

### EXTENT, LOSSES AND GAINS

Madagascar's 4,828km long coastline harbours the second-largest extent of mangroves in the WIO region, representing about 10% of Africa's mangroves and about 37% of the mangroves in the WIO region (and 2% of all mangroves in the world).<sup>36</sup>

According to the latest data from 2020, there are 277,567 ha of mangroves in Madagascar. 98% of these mangroves are located on the west coast of the country, with the largest systems found at Mahajamba Bay and Ambaro-Ambanja Bays.<sup>37</sup>

Between the years of 1996 and 2016, Madagascar experienced a net loss of 8,526 ha of mangroves, representing 2.3% of the country's mangrove area. This loss has been partly offset by the successful restoration of 1,449 ha between 2016 and 2020 as a result of successful restoration and conservation programs, coupled with natural regrowth and expansion.<sup>38</sup>

#### SIGNIFICANCE FOR BLUE CARBON AND BIODIVERSITY

Madagascar's mangroves sequester a staggering proportion of the country's fossil fuel emissions - somewhere in the region of 41 to 74%. The country's mangrove biomass and underlying sediment is estimated to store 303 Mt CO<sub>2</sub>e.<sup>39</sup>

In addition, Madagascar is internationally renowned for its wealth of biodiversity, including many endemic species. The coastal mangroves of western Madagascar are home to several endemic and critically endangered bird species, including the Madagascar heron, teal and plover.<sup>40</sup> It is thought that over half of all lemur species (also endemic to Madagascar) have mangroves within their ranges, and that at least 23 lemur species use mangrove habitat at least occasionally.<sup>41</sup>

36,37,38, 39 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.

40 Ratsimbazafy, R., D. Randriamanantena, J. Rakotondrazafy, H. Rakotomalala, V. Ramahery, E. Roger, H. Razakanirina, H. Rabarison, T. Lavitra, J. Mahafina, L. Ravaoarinorotsihoarana, G. Cripps, K. England, A. Carro, T.G. Jones, L. Glass, B. Taylor and L. Danhaive, 2016. Mangroves of Madagascar. Chapter 6 in: Bosire J.O. et al. (Eds.), Mangroves of the Western Indian Ocean: Status and Management, WIOMSA, Zanzibar Town, pp. 95-112,

41 Gardner, C.J., 2016. Use of mangroves by lemurs. International Journal of Primatology 37: 317-332.

### SPOTLIGHT ON MADAGASCAR

#### THE SOCIO-ECONOMIC IMPORTANCE OF MANGROVES IN MADAGASCAR

Mangroves play a critical role in supporting the livelihoods of over 2 million people living in coastal areas in Madagascar. $^{42}$ 

As with other WIO countries, mangroves are critically important in supporting Madagascar's fishing and trawling industries. The prawn and crab trawling industries combined derive over US\$ 36 million per year in value from ecosystem services from mangroves.<sup>43</sup>

Taking into account the range of critically important goods and services they provide to people living in the country, Madagascar's mangroves have been estimated to provide US\$ 82.6 million in annual net benefits to the national economy.<sup>44</sup>

#### THE RESTORATION POTENTIAL OF MANGROVES IN MADAGASCAR

Restoration efforts over the past decade have led to an increase in mangrove area in Madagascar, with gains of up to 3000 ha estimated since 2015.<sup>45</sup> In terms of restoration potential, there are around 8,039 ha available for restoration, evenly spread along the west coast. Multiple community-based restoration projects have been implemented along the west coast in the past fifteen years, but more are needed to ensure the sustainable rehabilitation and growth of mangroves in Madagascar into the future.

### GOVERNANCE OF MADAGASCAR'S MANGROVE FORESTS

The biggest threat to Madagascar's mangroves is deforestation for fuel. Further threats include logging for agriculture, shrimp farming and crab fishing, ecotourism infrastructure, human settlements, migration and population growth, and salt production. The climate crisis, the impacts of which mangroves can mitigate against, is also threatening the forests through sea level rises and increases in the frequency and severity of cyclones.



Mangrove conservation measures in Madagascar are relatively new, having only been implemented a decade ago. The current model sees mangrove management rights transferred to community-based organisations (CBOs) or Vondron' Olona Ifotany (VOI) (also known as 'Fokonolona') under the authority of the Directorate of Protected Areas, Renewable Natural Resources and Ecosystems (DAPRNE) under the Ministry of Environment and Sustainable Development. As part of this process, informal reserve committees have been established, and local people enforce local laws and regulations, including via forest patrols to protect mangrove resources from exploitation. This model ensures that communities are directly involved in the day-to-day management, protection and rehabilitation of mangroves. It has seen mixed success since implementation, with urban areas and sites of major economic activity (for example rice farming) lagging behind other areas when it comes to progress.

<sup>42</sup> Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International. 43, 44 WWF Madagascar, 2021. Évaluation du rôle socio-économique des mangroves et de leur cadre de conservation à Madagascar. 45 Erftemeigre, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.

### SPOTLIGHT ON MADAGASCAR

A National Mangrove Management Strategy and a Fisheries Management Plan for North West Madagascar is currently in development, designed to address inconsistencies in current management programmes, and enable further community participation. As further participatory processes are developed, policymakers should focus on making progress in the following areas:<sup>46</sup>

#### **1. STRENGTHENING INSTITUTIONAL COORDINATION AND CAPACITY:**

There is huge ambiguity about the responsibilities of the environment ministry and the fisheries ministry when it comes to mangrove management. Two coordination mechanisms have been set up to deal with mangroves in Madagascar: the National Committee for the Integrated Management of Coastal Zones (CNGIZC) and the National Committee for the Integrated Management of Mangroves (CNGIM). However, these entities lack the capacity to coordinate effectively.

#### 2. REVISION OF THE PROCEDURE RELATING TO CRIMINAL TRANSACTIONS:

Discrepancies between legal policies can lead to immunity for those who commit illegal activities in the mangroves.

#### 3. INVOLVING COMMUNITIES IN MANGROVES DECISION-MAKING AND MANAGEMENT:

There are mechanisms in Madagascar for the involvement of communities in the management of mangroves, but contradictions within national and local legislation frequently result in roadblocks to community empowerment.



#### LEARN MORE

- Évaluation du rôle socio-économique des mangroves et de leur cadre de conservation à Madagascar (2021)
- <u>Madagascar note de politique: promouvoir la valeur des</u> mangroves en vue de renforcer sa conservation durable (2021)
- The State of Mangroves in the Western Indian Ocean (2022)
- <u>Tangled Roots and Changing Tides: Mangrove Governance</u> For Conservation And Sustainable Use (2019)
- <u>Madagascar note de politique: Le cadre juridique et</u> politique devront être renforcés pour assurer l'utilisation durable des mangroves (2019)

46 Save Our Mangroves Now, 2019. Madagascar policy brief: How can the legal and policy framework be strengthened to ensure sustainable use and conservation of mangroves?

## MANGROVE MESSENGER

### Justin Rakotomanahira

Justin Rakotomanahira is president of the grassroots community "Analamaitso tsy ho gnan'olo" (The Green Forest that is ours), that has restored 56ha of mangroves in western Madagascar. The organisation was set up in 2005. Ever since, his community has felt the benefits of mangrove conservation activities. They rely on crab, shrimp and fish from the mangroves, as well as honey and timber.



We know that if nature disappears our health and our wellbeing are in danger. We are plagued by climatic disasters. Fortunately however, we know that mangroves hold back the waves... We must set an example of responsiveness and dynamism. We must enforce the regulations and show commitment. Let us protect our biodiversity for future generations. Let's increase our natural wealth; restore the degraded forests; plant trees every year.

**Justin Rakotomanahira Community Leader** Morondava District, Menabe Region, Madagascar

**HEAR MORE FROM JUSTIN** 

## SPOTLIGHT ON MOZAMBIQUE

**302,735**ha **\$7**billion

mangrove cover remaining in Mozambique<sup>1</sup>

**25,899**ha area available for restoration<sup>2</sup>

400,000

number of people directly depend on mangroveassociated fisheries for their livelihood<sup>3</sup>

the value provided by mangroves in Mozambique in ecosystem services per year<sup>4</sup>

39%

percentage of Mozambique's total yearly fossil fuel CO<sub>2</sub> emissions stored in the country's mangroves⁵

# ~305<sub>Mt C0,e</sub>

mangrove areas<sup>6</sup>

total carbon currently stored in Mozambique's EXTENT, LOSSES AND GAINS

Mozambique harbours the largest extent of mangroves in the WIO region. Its 2,470km coastline boasts around 10% of Africa's mangroves and around 40% of the mangroves in the WIO region (2% of all mangroves in the world).47

According to the latest data from 2020, there are 302,735 ha of mangroves in Mozambigue. 16% of these mangroves are located in the Zambezi Delta, which is the country's largest continuous mangrove area. Here the mangrove trees can reach up to 30m in height, putting them among the tallest mangroves in the WIO region.<sup>48</sup>

Global Mangrove Watch data indicates that Mozambigue lost 5% (15,910 ha) of its mangroves in just under a quarter of a century, between 1996 and 2020 – the largest loss of any of the countries in this report.<sup>49</sup> Whilst gains have not been clearly defined, one study suggests that the extent of mangroves in the Zambezi Delta increased by 3,723 ha (10%) between 2000 and 2014.50

#### SIGNIFICANCE FOR BLUE CARBON AND BIODIVERSITY

Mozambigue's mangroves sequester well over one third (39%) of the country's annual fossil fuel emissions, with the total amount of carbon stored in Mozambique's mangroves estimated to be around 305.46 Mt CO<sub>2</sub>e. The Zambezi Delta is a blue carbon hotspot, harbouring high amounts of above- and below-ground mangrove biomass and sediment carbon.<sup>51</sup>

Mozambique's mangroves, and the Zambezi Delta in particular, are home to a wealth of significant biodiversity. This includes 73 waterbird species, 94 fish species, 19 amphibian species, Nile crocodiles and several other reptiles, including marine turtles, in the Zambezi Delta alone.<sup>52, 53</sup>

47, 48, 49 Erftemeijer, P. and de Boer, M., 2022, The State of Mangroves in the Western Indian Ocean, WWF, IUCN and Wetlands International

50 Shapiro, A., C. Trettin, H. Küchly, S. Alavinapanah and S. Bandeira, 2015. The mangroves of the Zambezi Delta from 1994 to 2013: increase in extent observed via satellite. Remote Sensing 7: 1-17

- 51 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International
- 52 Beilfuss, R.D., 2015. The Zambezi Delta (Mozambique). Chapter in: C.M. Finlayson et al. (eds.), The Wetland Book, Springer Science, DOI 10.1007/978-94-007-6173- 5\_195-2

53 Macamo C., Bandeira S., Muando S., Abreu D., and H. Mabilana, 2016a. Mangroves of Mozambique. Chapter 4 in: Bosire J.O. et al. (eds.), Mangroves of the Western Indian Ocean: Status and Management. WIOMSA, Zanzibar Town, pp. 51-73.

1,2,3,5 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.

- Macamo, C. et al, 2021. Mangrove socioeconomic evaluation and conservation framework in . Dzambique. IUCN. This value is based on averages from the Limpopo Estuary and the Zambezi Delta.
- FAO, 2007. Fishery Country Profile The Republic of Mozambique. Food and Agriculture Organization of the United Nations, FID/CP/MOZ, September 2007, 17 pp

SAVING OUR MANGROVES IN KENYA, TANZANIA MOZAMBIQUE AND MADAGASCAR: WHERE DO WE STAND? Report



### SPOTLIGHT ON MOZAMBIQUE

#### THE SOCIO-ECONOMIC IMPORTANCE OF MANGROVES IN MOZAMBIQUE

Mangroves play a critical role in supporting the livelihoods of people living in coastal areas in Mozambique, including the 400,000 people who directly depend on mangrove-associated fisheries.<sup>54</sup>

As is the case for other countries in the WIO, Mozambique's mangroves provide vital support to the fishing and trawling industries, through provision of spawning grounds and habitats for marine life such as fish, prawns and crabs. However, according to WWF, prawn catches dropped from >9,000 tonnes per year to 1,800 tonnes per year in the decade between 2002 and 2012, due to exploitation of mangrove resources, emphasising the ongoing need for sustainable management of mangroves in the country.<sup>55</sup>

Taking into account the range of critically important goods and services they provide to people living in the country, Mozambique's mangroves have been estimated to provide US\$ 7 billion in annual net benefits to the national economy.<sup>56</sup>

#### THE RESTORATION POTENTIAL OF MANGROVES IN MOZAMBIQUE

Mozambique has a number of mangrove restoration projects underway, following the development of a national strategy for mangrove restoration that aimed to restore an initial 5,000 ha of mangrove forest by the year 2022. In total, the country has high mangrove restoration potential, with 25,899 ha available for restoration. Community-led projects are ongoing in many locations including Chinde District and Quelimane District in Zambezia.<sup>57</sup>

- 56 Macamo, C. et al, 2021. Mangrove socioeconomic evaluation and conservation framework in Mozambique. IUCN. This value is based on averages from the Limpopo Estuary and the Zambezi Delta.
- Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.
   Macamo, C. et al, 2021. Mangrove socioeconomic evaluation and conservation framework in Mazambigue, IUCN.

#### **GOVERNANCE OF MOZAMBIQUE'S MANGROVE FORESTS**

In recent years Mozambique has faced a number of threats to its mangrove forests, including exploitation of resources (such as wood for firewood), destruction due to aquaculture and saltpan development, logging, urban encroachment, destruction due to port development and extreme weather events such as flooding and cyclones.<sup>58</sup> These threats make effective governance essential to secure the future of the country's mangroves.

One third (34%) of Mozambique's mangroves are in protected areas, but this doesn't guarantee effective conservation, especially in remote areas. Whilst all mangroves in Mozambique are protected by law from commercial exploitation, pollution, degradation and land conversion, as in other countries, enforcement is not straightforward.<sup>59</sup>

The National Strategy and Action Plan for Mangroves Management in Mozambique (2020-2024) – which advocates for the conservation and restoration of mangrove forests to maintain the ecological processes and functions of mangrove ecosystems – is hampered by poor coordination across sectors, policy failure, weak or dysfunctional state institutions, and a lack of participatory awareness.<sup>60, 61</sup> This Plan is currently proposed for review to better incorporate a mangrove restoration manual and improve monitoring of existing mangrove areas, as well as those to be restored.

Additionally, population dynamics, concentration on coastal areas and poverty constitute a three-pillar risk impacting the conservation efforts and increasing the pressure on natural resources, especially mangroves.

FAO, 2007. Fishery Country Profile – The Republic of Mozambique. Food and Agriculture Organization of the United Nations, FID/CP/MOZ, September 2007, 17 pp.
 WWF, 2017. A sustainable shrimp fishery for Mozambique. WWF Fact Sheet. WWF, https://www.fishforward.eu/wp-content/uploads/2017/11/WWF\_Factsheet\_ Mo%C3%A7ambique=EN.pdf

<sup>59</sup> Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.

<sup>60</sup> Macamo C., Bandeira S., Muando S., Abreu D., and H. Mabilana, 2016. Mangroves of Mozambique. Chapter 4 in: Bosire J.O. et al. (eds.), Mangroves of the Western Indian Ocean: Status and Management. WIOMSA, Zanzibar Town, pp. 51-73.

<sup>61</sup> Macamo, C.C.F., E. Massuanganhe, D.K. Nicolau, S.O. Bandeira and J.B. Adams, 2016. Mangroves' response to cyclone Eline (2000): What is happening 14 years later? Aquatic Botany 134: 10-17.

### SPOTLIGHT ON MOZAMBIQVE

In a positive move, Mozambique's updated Nationally Determined Contribution (NDC) to the Paris Agreement in late 2021 set a restoration target of 5,000 ha by 2025, as well as identifying mangroves as key breeding and feeding areas for fish. If Mozambique is to reach its goals, the following processes are essential to streamlining mangrove conservation and restoration:<sup>62</sup>

#### 1. HARMONIZING THE POLICY FRAMEWORK TO ENSURE COAST PROTECTION:

Inconsistencies in the current policy framework for mangrove management hamper progress. Current fishery policies do not recognise the importance of mangroves, despite mangroves being critical in sustaining the fishing industry. Meanwhile, disconnection between the Reforestation Strategy, the Erosion Action Plan and the Disaster Risk Reduction Master Plan, has resulted in areas at risk of natural disasters not being correlated with areas designated for reforestation. Both the National Territorial Development Plan and the Marine Spatial Plan address this inconsistency by identifying key biodiversity areas and key mangrove areas as regions impacted by climate change, and where restoration provides coastal resilience.

#### 2. DEVELOPMENT OF SPECIFIC LEGAL PROVISIONS FOR MANGROVES:

The legal framework governing mangroves in Mozambique is highly fragmented, leading to major inconsistencies that compromise mangrove conservation. This could be addressed by developing a series of tools or specific legal provisions aimed at mangrove conservation.

#### 3. INSTITUTIONAL CAPACITY-BUILDING:

The institutional governing framework on mangroves - and on coastal, marine and protected and conserved areas in general - is highly diverse and going through a number of administrative and legal changes. Featuring a high number of institutions with overlapping mandates, it creates confusion over institutional responsibilities and stalls meaningful action.

#### 4. ASSESSING THE IMPACTS OF MINING AND INFRASTRUCTURE DEVELOPMENTS:

Permission for harmful activities is still granted in conservation areas, despite provisions in the Conservation Act that prohibit them, due to land use policy that favours mining.



#### LEARN MORE

- <u>Mangrove Socioeconomic Evaluation and Conservation</u>
   <u>Framework in Mozambique (2021)</u>
- Mozambique policy brief: Que caminhos a seguir: Como valorizar e apoiar o valor económico dos mangais de forma sustentável e inclusiva? (2021)
- The State of Mangroves in the Western Indian Ocean (2022)
- <u>Tangled Roots and Changing Tides: Mangrove Governance</u> For Conservation And Sustainable Use (2019)
- <u>Mozambique policy brief: Como pode o quadro jurídico e</u> político ser reforçado para garantir o uso sustentável e a conservação dos mangais? (2019)
- Web story: <u>Eloise</u>

## MANGROVE MESSENGER

### Celia Macamo

Celia Macamo's research focuses on mangrove forests ecology, management and conservation. In recent years she has witnessed more and more communities becoming interested and involved in mangrove conservation.



It's exciting when you go into a community, thinking you are going to teach them, but in the end you are the one who is learning. And that is happening a lot in several places. Mangrove conservation is very important because mangroves provide many resources, many goods, many services to communities.

**Celia Macamo Biologist and Ecologist** Mozambique

**HEAR MORE FROM CELIA** 

## SPOTLIGHT ON TANZANIA

110,787ha \$2.1billion

mangrove cover remaining in Tanzania<sup>1</sup>

**3,611**<sub>ha</sub> area available for restoration<sup>2</sup>

# ~153<sub>Mt C0,e</sub>

estimated total carbon currently stored in Tanzania's mangrove areas<sup>3</sup>

1,2,3,5 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF. IUCN and Wetlands International.

WWF Madagascar, 2021. Évaluation du rôle socio-économique des mangroves et de leur cadre de conservation à Madagascar

the per-year contribution made to Tanzania's economy by mangroves<sup>4</sup>

percentage of Tanzania's total yearly fossil fuel CO<sub>2</sub> emissions stored in the country's mangroves<sup>5</sup>

150,000 number of people in

Tanzania who make their living directly from mangrove resources,<sup>6</sup> including

artisanal fisherme

6 TCMP, 2001. State of the coast 2001: People and the environment. Dar es Salaam, Tanzania: Tanzania Coastal Management Partnership, TNC, 2021, Mother Mangrove The women behind Kenya's mangrove restoration. 7 Jiddawi, N.S. and M.C. Ohman, 2003. Marine fisheries in Tanzania. Ambio 31: 518-527.

#### EXTENT. LOSSES AND GAINS

Tanzania's 1,424 km-long coastline is home to the third largest extent of mangroves in the WIO region, representing about 4% of Africa's mangroves and about 15% of the mangroves in the region (and 1% of the world's mangroves).

The current extent of mangroves in Tanzania as of 2020 is 110,787 ha, with the largest continuous mangrove areas occurring in the Rufiji Delta and its surrounding region.

The total area of mangroves in Tanzania decreased from 117,396 ha in 1996 to 110,787 ha in 2020,63 representing an overall net loss of 6,608 ha over 24 years.

#### SIGNIFICANCE FOR BLUE CARBON AND BIODIVERSITY

Tanzania's mangroves sequester up to 8% of the total annual fossil fuel emissions of Tanzania. The Rufiji Delta itself is a carbon storage hotspot, with high levels of above- and below-ground biomass and sediment carbon.64

Meanwhile, Tanzania's mangroves harbour significant biodiversity, with the forests providing habitats for an abundance of bird and fish species in particular. At least 437 bird species have been reported from the mangroves of Rufiji Delta and adjoining coastal forests to date<sup>65</sup> – including 13 globally threatened species – whilst commercially significant fish species including snappers, emperors, groupers, milkfish and mullets shelter, feed and breed in the mangroves. The Rufiji Delta is also home to terrestrial animals such as crocodiles and, hippopotamus, baboons, duikers, rodents, and fruit bats.

63, 64 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.

- 65 LePage, D., 2022. Avibase Bird Checklists of the World: Rufiji. https://avibase.bsc-eoc.org/checklist. jsp?region=TZpwru
- 66 Mangora, M.M., B.R. Lugendo, M.S. Shalli and S. Semesi, 2016. Mangroves of Tanzania. In: Bosire JO, Mangora MM, Bandeira S, Rajkaran A, Ratsimbazafy R, Appadoo C, Kairo JG (eds), Mangroves of the Western Indian Ocean: status and management, WIOMSA, Zanzibar, pp. 33-49.
- 67 Doody, K. and O. Hamerlynck, 2003. Biodiversity of Rufiji District A Summary. Rufiji Environment Management Project, Technical Report No. 44.

SAVING OUR MANGROVES IN KENYA, TANZANIA MOZAMBIQUE AND MADAGASCAR: WHERE DO WE STAND? Report



### SPOTLIGHT ON TANZANIA

#### THE SOCIO-ECONOMIC IMPORTANCE OF MANGROVES IN TANZANIA

Mangroves play a critical role in supporting the livelihoods of 150,000 people in Tanzania.<sup>68</sup> They are – in particular those in the Rufiji Delta – critically important to the fishing industry for finfish and prawns, providing spawning grounds for fish and crustaceans. The prawn industry alone derives TZS 5.2 billion (US\$ 2.3 million) per year in value from ecosystem services from mangroves. Artisanal fishermen make up almost one third of the 150,000 people living in Tanzania's coastal zone who rely directly on mangrove resources to make their living.<sup>69</sup>

In total, the ecosystems services provided by mangroves have been valued at TZS 4.8 trillion (US\$ 2.1 billion) per year. Over one third of this figure is derived from the coastal protection that mangroves provide, whilst over half relates to the value of carbon storage.<sup>70</sup>

#### THE RESTORATION POTENTIAL OF MANGROVES IN TANZANIA

Compared to Madagascar and Kenya, there have been fewer mangrove restoration initiatives in Tanzania to date and most report low success. Tanzania has high mangrove restoration potential, with at least 3,611 ha of land available for restoration.<sup>71</sup> Learnings from previous projects highlight that limited involvement of local communities can result in disenfranchisement, and a lack of understanding of the benefits of restoration, resulting in continued intensive and unsustainable use of wood for fuel and timber.<sup>72</sup> More recent collaborative mangrove restoration in the Rufiji Delta shows signs of success.

#### GOVERNANCE OF TANZANIA'S MANGROVE FORESTS

Mangrove forests are gazetted as state forest reserves in Tanzania, which gives management mandate to Tanzania Forest Services (TFS) agency as the primary custodian of forests. Like other WIO countries, Tanzania has developed a plan to manage mangrove forests, but has faced roadblocks in implementing it effectively. The National Mangrove Management Plan (created in 1991) has inadequately engaged local communities reliant on mangroves for their livelihoods, resulting in the continued degradation of forests as poverty drives communities to exploit mangroves as cheap sources of wood.73 Meanwhile, land conversion for agriculture, aquaculture and salt pans have provided additional threats to mangrove health.74



<sup>68, 69</sup> Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International. 70 Mangora, M.M. et al, 2021. Socio-economic role of mangroves and their conservation framework in Tanzania. WWF Tanzania. 71, 72, Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International.

<sup>73</sup> Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International. 74 Mangora, M.M. et al, 2021. Socio-economic role of mangroves and their conservation framework in Tanzania. WWF Tanzania.

### SPOTLIGHT ON TANZANIA

Multiple sectors - including wildlife, tourism, agriculture, pastrolism and fishing - play a role in the decline of Tanzanian mangroves, but none of them take responsibility or lead in collaborative conservation efforts. Participatory forest management strategies, in particular the Joint Forest Management approach, have failed to get off the ground, and donor-led restoration initiatives have only succeeded in the short term, until funds dry up. In this context, the following developments will be key to the future protection of mangrove forests in Tanzania:<sup>75</sup>

#### 1. STRENGTHENING MANAGEMENT AND INSTITUTIONAL CAPACITY:

Most forest management activities depend on donor funding. Due to a shortage of staff and working facilities, TFS faces challenges in regularly patrolling and monitoring for illegal activities, and lacks capacity and resources to provide services for local communities. Additionally, the different agencies involved in mangrove management are generally not well coordinated.

#### 2. CONDUCTING A PARTICIPATORY AND EFFECTIVE REVISION OF THE 1991 MANGROVE MANAGEMENT PLAN:

The National Mangrove Management Plan developed in 1991 was not effectively implemented due to inadequate funding and technical resources. Revision of the plan is progressing and successful implementation will be key to success.

#### 3. ENABLING COMMUNITY PARTICIPATION:

Communities have not been able to benefit from the legal framework governing mangroves, leading to unsustainable use and management at local level. If properly implemented, the Joint Forest Management (JFM) approach has significant potential for mangrove conservation.

#### 4. HIGH LEVEL COORDINATION OF INSTITUTIONS:

The integration of actors operating in the mangrove forest sector for the sustainable management of land, mangrove forests, water resources, marine and wildlife resources is crucial. Such coordination will enable institutions implementing agendas to communicate and make joint decisions to ensure active participation of local level institutions responsible for mangrove management.

### 5. COLLECTING AND DISSEMINATING ACCURATE DATA TO ENABLE SCIENCE-BASED DECISION MAKING:

There is inadequate data on mangroves in Tanzania. The absence of reliable information on coverage and status impedes effective management. Few stakeholders have a good understanding of mangroves despite their enormous benefits economically, ecologically and socially. More readilyavailable data will help engage stakeholders in regeneration efforts.

#### 6. STRATEGIC SOCIAL AND ENVIRONMENTAL ASSESSMENT:

Holistic evaluations are important to create integrated plans regulated by frameworks and sector policies related to forests, land and environment. These assessments are considered under the Environmental and Social Safeguard Framework.

#### LEARN MORE

- <u>Socio-economic Role of Mangroves and their Conservation</u> <u>Framework in Tanzania (2021)</u>
- <u>Tanzania policy brief: Mangrove conservation for local livelihoods</u> and economies in Tanzania (2021)
- The State of Mangroves in the Western Indian Ocean (2022)
- <u>Tangled Roots and Changing Tides: Mangrove Governance For</u> <u>Conservation And Sustainable Use (2019)</u>
- Tanzania Policy brief: How can the legal and policy framework
   be strengthened to ensure sustainable use and conservation of
   mangroves? (2022)

## MANGROVE MESSENGER

### Kaitira Benard Nyahuro

Kaitira Benard has worked with many communities in his position as an aquatic scientist and Co-Founder of <u>Agua-Farms Organization</u> (AFO). Beekeeping, mangrove planting, tourism or blue carbon projects are all opportunities for mangrove conservation to generate direct gains for local communities in Tanzania.



Mangroves have a great potential for creating jobs in the coastal communities if the communities themselves emphasise conservation. We know that if mangroves are properly managed now, the next generation will benefit from the same fruits that we are already benefitting from.

**Kaitira Benard Nyahuro Aquatic Scientist** Dar Es Salaam, Tanzania

HEAR MORE FROM KAITIRA

### RAISING COLLECTIVE POLITICAL AMBITION WHERE ARE WE, AND WHERE ARE WE GOING?

### TOWARDS A REGIONAL MANGROVE VISION AND ACTION PLAN IN THE WESTERN INDIAN OCEAN

Kenya, Madagascar, Mozambique and Tanzania share similar ecological, socio-economic and governance challenges for the management of mangrove ecosystems. Given their transboundary nature, coordinated regional action is essential to conserve mangroves and ensure the continued provision of crucial ecosystem services.

We are encouraged by the progress and advances made throughout Western Indian Ocean (WIO) countries. Now is the time to raise ambition at the regional level and commit to shared goals and targets to ensure alignment and attract funding at the scale needed. This is vital to ensure that mangroves can continue strengthening the region's ability to adapt to the rapidly changing climate and its impacts on local communities and their livelihoods.

In line with the Nairobi Convention decision,<sup>75</sup> we call for these countries to translate their global commitments and national vision into a common regional action plan for the coming decade and beyond by Nairobi Convention COP11 (late 2023). This would accelerate the necessary collaboration and coordination among the countries, coastal communities, other stakeholders, and various initiatives committed to conserving and protecting mangroves for future generations.

75 Decision CP.10/12 (2d), Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean Region Contracting Parties. Available at: https://www.nairobiconvention.org/clearinghouse/sites/default/files/Adopted%20 Decisions%20for%20COP10\_25\_11\_21\_12.00pm\_CLEAN.pdf#overlay-context=node/771 [accessed 27 September 2022]

#### **INCREASING INTERNATIONAL AMBITION**

Momentum is building for global action to address the interlinked need to tackle climate change, reverse biodiversity loss and secure a nature-positive world by 2030, with a full recovery by 2050.<sup>76</sup> Mangroves are central to achieving this critical outcome. Their role in safeguarding biodiversity, mitigating climate change and building resilience cannot be overlooked.

The sustainable management of mangrove forests requires global collaboration and coordination. Accelerated collective action delivered through national and local efforts is essential.

International policy processes, such as the United Nations (UN) negotiations focused on climate change, biodiversity and sustainable development, have the potential to enhance coastal conservation, restoration and sustainable use of coastal ecosystems such as mangroves. It is imperative to leverage synergies across policy processes to enhance global, regional and national ambition, accelerate implementation, and measure results.<sup>77</sup>

76 A Global Goal for Nature: Nature Positive by 2030 [online]. Available at: https://www.naturepositive.org/ [accessed 19 September 2022]
77 To this extent IUCN and Conservation International, in collaboration with their members and partners, are currently developing a Policy Framework for Blue Carbon Ecosystems to ensure conservation, restoration and sustainable management of coastal ecosystems. Available at: https://www.bluecarbonpolicy.org/ [accessed 13 October 2022]

SAVING OUR MANGROVES IN KENYA, TANZANIA MOZAMBIQUE AND MADAGASCAR: WHERE DO WE STAND?

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### RAISING COLLECTIVE POLITICAL AMBITION

The following are some of the key global agreements\* and WIO commitments that together provide a roadmap for a sustainable planet, and are unique opportunities to raise ambition on mangrove conservation.

#### THE PARIS AGREEMENT UNDER THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC) AND ASSOCIATED COUNTRY PLANS FOR CLIMATE ACTION KNOWN AS NATIONALLY DETERMINED CONTRIBUTIONS (NDCS)

### Limit global warming to 1.5 degrees Celsius compared to pre-industrial levels.

Following the inclusion of ocean and coastal ecosystems in the Glasgow Climate Pact in 2021, the ongoing Global Stocktake to assess the world's collective progress towards achieving the Paris Agreement will inform countries on where and how to raise ambition through their NDCs. Overall, the protection and restoration of coastal blue carbon ecosystems – including mangroves - represent a critical and under-utilised mitigation opportunity for many countries under the UNFCCC, while also helping increase coastal resilience in a changing climate.

- Kenya (2020), Mozambique (2021), and Tanzania's (2021) updated and submitted NDCs specifically mention mangroves.
- Madagascar is in the process of updating its NDC which already included mangroves in the first edition (submitted 2016).

#### THE 2050 VISION FOR BIODIVERSITY AND THE ASSOCIATED POST-2020 GLOBAL BIODIVERSITY FRAMEWORK (GBF) UNDER THE UN CONVENTION OF BIOLOGICAL DIVERSITY (CBD)

By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet, and delivering benefits essential for all peoples.

The associated GBF – replacing the now-expired Aichi Targets – outlines 2050 goals and 2030 action targets and is expected to be adopted by governments at the UN Biodiversity Summit (CBD COP15) in Canada in December 2022. Overall, the increasing protection of coastal and marine ecosystems under the CBD not only benefits biodiversity action, it also supports climate change mitigation and adaptation, the sustainable use of resources, economic growth, and the provision of clean air and water.

- WIO countries are well positioned to rally strong implementation of the GBF, with national and regional action on mangroves key to the achievement of multiple goals and targets.
- Kenya (2000-2005 with an updated draft 2019-2030), Mozambique (2015-2035), Madagascar (2015-2025) and Tanzania (2015-2020) have included mangroves in their National Biodiversity Strategies and Action Plans (NBSAPs), which are the main vehicle for the implementation of the CBD at the national level.
- The anticipated review and revision of NBSAPs and the CBD Marine and Coastal Biodiversity Programme of Work to align with the GBF would be key opportunities to capture enhanced mangrove action and leverage commitments made under other international and national processes.

#### THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT AND SUSTAINABLE DEVELOPMENT GOALS (SDGS)

### Provide a shared blueprint for peace and prosperity for people and the planet.

In the context of mangrove conservation, the central cross-cutting goal is 'Life Below Water: Conserve and sustainably use the oceans, seas and marine resources for sustainable development' (SDG14), which is closely linked to other SDGs in an interconnected framework for protecting the ocean and linking it to human health, economic development, and climate action.

- These links offer opportunities for synergy, as well as requiring actors to balance trade-offs carefully.
- Tanzania and Mozambique's voluntary commitments to SDG14 specifically include mangroves, while Kenya and Madagascar's focus on blue economy issues more broadly.
- Kenya and Portugal co-hosted the 2nd UN Ocean Conference in June 2022, which outlined the priorities for accelerated investment in nature-based solutions in coastal ecosystems. The conference saw strong WIO country participation and notable announcements, including the launch of the restoration project 'Mangroves for Peace', and an announcement of the Mozambique Pemba Seascape, all as a part of the WIO-led Great Blue Wall initiative.

<sup>\*</sup> For other international processes, please see references and resources for further reading on page 28

## RAISING COLLECTIVE POLITICAL AMBITION

#### THE RAMSAR CONVENTION ON WETLANDS OF INTERNATIONAL IMPORTANCE

Provides a global framework for the conservation and wise use of wetlands and their resources, that envisions wetlands that are conserved, wisely used, restored, and their benefits recognised and valued by all.

- Madagascar has six Ramsar sites that include mangroves: the Site Bioculturel D'antrema, Mangroves De Tsiribihina, Barrière de Corail Nosy Ve Androka, Zones Humides de Sahamalaza, Iles Barren, Mangroves de la Baie D'ambaro Ramsar Sites.
- Kenya, Mozambique and Tanzania have designated one Ramsar site each: the Tana River Delta, Zambezi Delta and Rufiji-Mafia-Kilwa Marine Ramsar Sites respectively.

#### UN DECADES ON ECOSYSTEM RESTORATION AND OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT 2021-2030

These provide additional frameworks and opportunities to contribute WIO leadership in order to rally action to promote sustainable mangrove management, protect marine biodiversity and the ocean, and heal our planet.

#### THE GLOBAL MANGROVE ALLIANCE (GMA) GOAL

Secure the future of 15 million hectares of mangroves globally by 2030 through collective action on halting mangrove loss, restoring half of recent losses, and doubling protection of mangroves globally.

The associated UNFCCC Mangrove Breakthrough represents a science-based, achievable and measurable goal for non-state actors and governments to collectively restore and protect mangroves at the scale needed, while also aiming to catalyse financial investment. The Breakthrough was announced jointly by the GMA and UN Climate High-Level Champions for UNFCCC COP26 and COP27 during the Climate Week in New York City in September 2022. Further details and an action plan will be unveiled at the UN Climate Summit (COP27) in Egypt in November 2022.

- Halt loss and maintain integrity of remaining intact mangroves, preventing the conversion of 16,800 ha globally. In the WIO region, that means reversing the current trend of 3.9% loss of mangrove cover over 24 years (1996-2020).<sup>78</sup>
- Restore half of the mangroves that have been converted since 1996,
   totalling 409,150 ha globally. In the WIO region, that means that at least
   15,000 ha must be restored, although the potential for mangrove restoration is higher, with at least 40,900 ha available.<sup>79</sup>
- **Double protection**, **increasing the total mangrove area that has conservation status from 40% to 80% globally.** In the WIO region, protection status is a key priority, with the aim to move from the current 26% to 80%. In addition to 'traditional' protected areas, ambition to double protection could also include Other Effective Area-Based Conservation Measures (OECMs),<sup>80</sup> such as lands managed by Indigenous Peoples and local communities (IPLCs) where mangroves receive de facto protection. Protective measures must always respect the rights and needs of IPLCs; careful and inclusive planning and implementation are key.

78, 79 Erftemeijer, P. and de Boer, M., 2022. The State of Mangroves in the Western Indian Ocean. WWF, IUCN and Wetlands International. 80 An OECM is defined by the CBD as a geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socia-economic, and other locally relevant values (CBD/COP/DEC/14/8).

81 How our oceans can help us secure a nature-climate-people-positive future. Available at: https://news.cgtn.com/news/2022-06-08/Oceanscan-help-secure-a-nature-climate-people-positive-future-1aFZWT030sg/index.html [accessed 10 October 2022]



Governments and financial institutions should significantly step up their investments in the kind of ambitious, inclusive, and integrated solutions required to fulfil the Sustainable Development Goals. Further strengthening the links between the ocean, biodiversity and climate can deliver a future where a healthy ocean continues to function as the engine of our singular, superlative planet.

**Elizabeth Mrema, Executive Secretary of the CBD, and Marco Lambertini, Director General of WWF,** on World Ocean Day 2022, reflecting on how our oceans can help us secure a nature-climate-people-positive future.<sup>81</sup>

### RAISING COLLECTIVE POLITICAL AMBITION

Policymakers must collaborate and share knowledge, communicating lessons and sharing case studies of success, to achieve these international goals. However, there is not a one-size-fits-all approach; management must be tailored to local needs and context.

There is no time to lose. Upcoming global milestones and crucial negotiations are key moments to showcase shared ambition for a regional mangrove action plan in the WIO, and strengthen dialogue and coordination between partners. In turn, this can inspire other regions to follow the example of the WIO in bringing stakeholders together through a shared vision.



#### LEARN MORE

- The State of the World's Mangroves (2022)
- Policy Framework for Blue Carbon Ecosystems
- Unpacking the UNFCCC Global Stocktake for Ocean-Climate Action (2021)
- <u>Options for strengthening action on the ocean and coasts under the</u> <u>UNFCCC (2022)</u>
- Innovative Approaches for Strengthening Coastal and Ocean Adaptation: Integrating Technology and Nature-based Solutions (2022)
- Guidelines for Integrating Ecosystem-based Adaptation into National Adaptation Plans: Supplement to the UNFCCC NAP Technical Guidelines (2022)
- <u>Guidance on Mangrove Indicators in the Post-2020 Global Biodiversity</u> <u>Framework (2021)</u>
- <u>Ecosystem-based Adaptation and the successful implementation and</u> <u>achievement of the Sustainable Development Goals (2022)</u>
- Adoption and Implementation of the Multilateral Environmental Agreements and Global Commitments in the Western Indian Ocean
- <u>Towards a Regional Mangrove Vision and Action Plan for the Western</u> <u>Indian Ocean: Synthesis of Information, Policy, Practices and</u> <u>Recommendations (2022)</u>
- <u>Towards a Regional Mangrove Vision (discussion paper presented at</u> <u>Nairobi Convention Regional Science to Policy Meeting, 2021)</u>
- Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean Region Contracting Parties (2021)

Photo by Alexey Demidov on Pexels

SAVING OUR MANGROVES IN KENYA, TANZANIA MOZAMBIQUE AND MADAGASCAR: WHERE DO WE STAND?

Report

## MANGROVE PRINCIPLES TO GUIDE FUTURE EFFORTS

To this end, we offer a set of principles for sustainable mangrove ecosystem management that we hope can guide the design of collective action at the national and regional level in the WIO region and beyond. These Mangrove Principles are based on sustainable development principles and are intended to complement existing agreements. They offer practical guidance for national policymakers on action towards the conservation, protection, and restoration of mangrove ecosystems. This is in an effort to secure economic development, social equity and justice, and environmental integrity, and help navigate some of the globally recognised barriers to effective conservation of mangrove ecosystems. We hope these principles will guide the efforts in the WIO and beyond towards our collective goals.



### PROMOTE GOOD GOVERNANCE

#### Policy and legal frameworks

- Adopt national policies that prioritise the preservation of mangroves, through coordinating action, influencing legislation, and providing incentives to stakeholders across sectors.
- 2. Recognise that mangrove ecosystems transcend political, municipal and state boundaries. Effective coordination and cooperation is essential across sectors and at all levels to protect against threats to mangrove ecosystems and communities.
- 3. Put mangrove conservation and restoration at the top of national agendas, and ensure mangrove communities are represented at international conventions.



#### ENSURE AN ENGAGED AND EQUITABLE SOCIETY People's participation and empowerment

4. Ensure that communities are at the centre of mangrove conservation, with environmental and socioeconomic goals given equal precedence, and community stewardship legally recognised wherever possible.

#### **USE SOUND SCIENCE AND KNOWLEDGE**

### Credible knowledge base for science-based arguments and capacity-building

- 5. Use up-to-date scientific research to guide and increase capacity for mangrove conservation and restoration.
- 6. Make a science-based case for the role of mangrove conservation and restoration in economic resilience of communities.

### ACHIEVE A SOCIALLY SUSTAINABLE ECONOMY WITHIN ENVIRONMENTAL LIMITS Sustainable use of natural resources

- 7. Optimise efficiency in the management of mangrove ecosystems by taking a local approach to conservation and restoration.
- 8. Ensure that communities and their future generations benefit from the ecosystem services provided by mangroves, by securing commitment of sustainable use to prevent ecosystem exploitation.



### IMPLEMENT SUSTAINABLE CONSERVATION FINANCING

#### Innovative approaches and benefit-sharing

9. Engage communities in the conservation and restoration of mangrove ecosystems through the provision of financial support, including but not limited to the implementation of incentives and benefits in return for responsible management.

### CONCLUSION WHAT'S NEXT FOR MANGROVES IN THE WIO REGION?

The SOMN initiative partners – BMZ, WWF, IUCN and Wetlands International – are committed to supporting the implementation of the mangrove country national and global commitments to ensure that mangrove ecosystems - as part of coastal land- and seascapes - are conserved, restored, and sustainably used to the benefit of people and nature, locally and globally. We thank BMZ for their support of the SOMN initiative and will continue efforts to protect and restore these superhero ecosystems.

We find ourselves at a critical moment in our global effort to secure a healthy and prosperous future for people and nature. Collaboration, capacity building and the sharing of knowledge and resources by actors at all levels are fundamental to conserving coastal biodiversity, combatting climate change and protecting local communities. Continuing progress towards a regional action plan for the WIO is a clear example to the international community of the commitment of governments and other stakeholders in the region to protect precious mangrove ecosystems that sustain life in myriad ways. We stand ready to support the WIO countries and stakeholders - including the WIO Mangrove Network - in this endeavour, and aspire for the Mangrove Principles to guide action towards sustainable mangrove ecosystem management in the region. The successful adoption of a regional mangrove action plan in the WIO has the potential to promote and embed the Mangrove Principles across the globe, inspiring other regions to coalesce around a shared vision. The legal assessments and guidance provided by SOMN will help policy- and law-makers to enhance mangrove conservation efforts and their mainstreaming into national and regional action plans, cross-sectoral policies and strategies. We hope that the WIO region will continue to champion sustainable mangrove ecosystem management and become an internationally recognised and replicable example of best practice, ultimately leading to the enhanced conservation and sustainable use of mangroves both regionally and international - pool knowledge and resources in order to reach our collective goals. The time is now to unite around people, climate and the ocean.

Together, we can create a world in which thriving mangrove ecosystems exist in harmony with the communities they support.

#### INTERNATIONALLY:

- Global Mangrove Alliance
- Mangrove Action Project
- Blue Action Fund
- <u>Blue Carbon Initiative</u>
  - <u>Blue Natural Capital Financing Facility</u> and <u>Blue Carbon Accelerator Fund</u>
- <u>Race to Resilience/Race to Zero</u>
- <u>Friends of Ecosystem-based</u>
   <u>Adaptation</u>
- <u>Mangrove Specialist Group of the</u> IUCN Species Survival Commission
- <u>Partnership for Environment and</u> Disaster Risk Reduction

#### IN THE WIO REGION:

- Narobi Convention
- <u>WIO Mangrove Network</u>
- <u>Western Indian Ocean Marine</u> <u>Science Association</u>
- <u>Our Blue Future</u>
- Mangrove Capital Africa
- <u>Great Blue Wall</u>

And many others. Thanks to all of these actors for their continued efforts to safeguard one of the most critical ecosystems in the world.

### CREDITS

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**For further information visit:** www.mangrovealliance.org/save-our-mangroves-now, follow **@MangrovesNow** on Twitter and use the hashtag #rootsofhope

**Note:** \$ refers to US dollars unless otherwise specified. Local currency exchange equivalent amounts were correct at the time of publication and/or their original source is cited.

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