



WWF

SUMMARY

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REVIVING THE WESTERN INDIAN OCEAN ECONOMY

Actions for a Sustainable Future

in association with



BCG

The Boston Consulting Group

Front cover

A traditional fisherwoman gleans for octopus on a vast reef flat during low tide. Octopus fishing is a source of food and livelihood for many communities across the Western Indian Ocean.

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WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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For all references and details, please refer to the main report available at ocean.panda.org.



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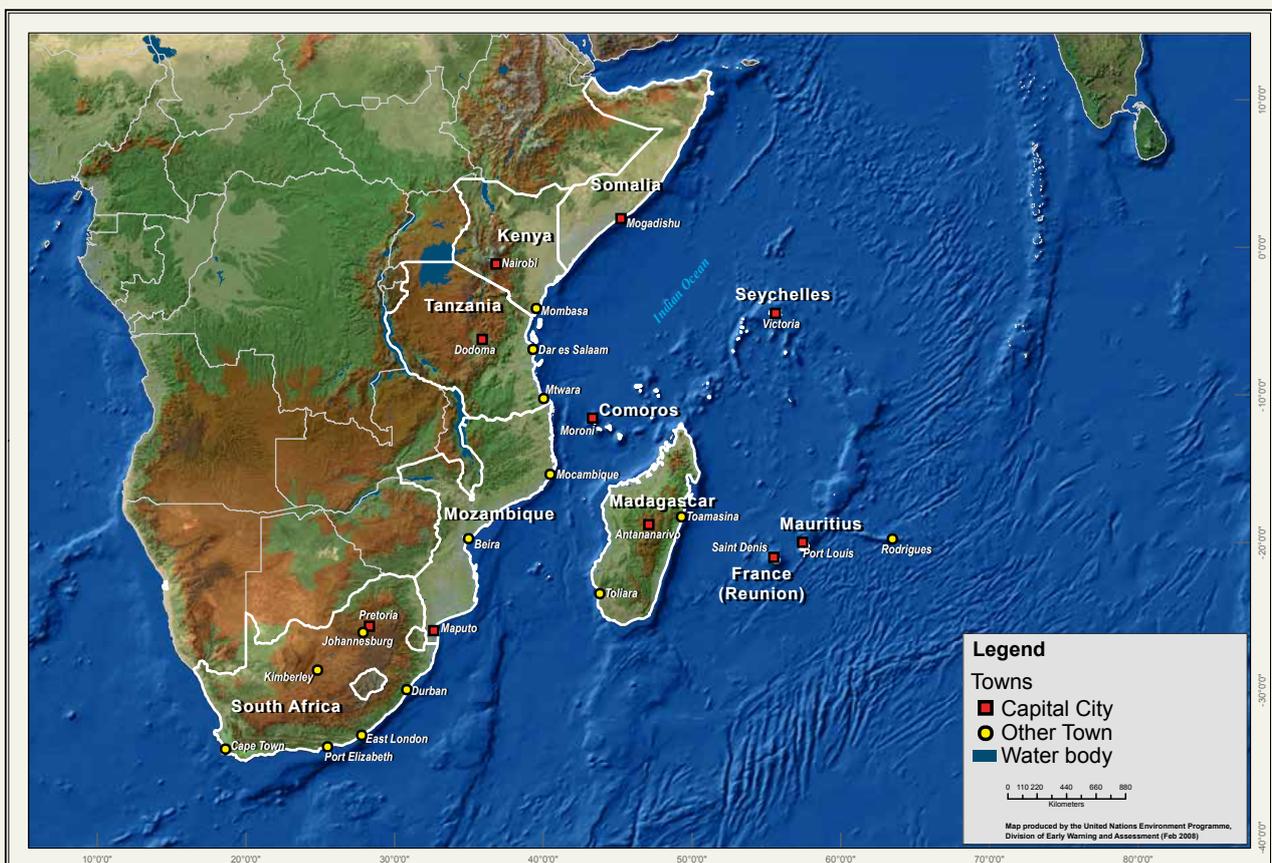
SUMMARY

It is hard to overstate the importance of the Western Indian Ocean to the socio-economic fabric of the region. Some 60 million people live within 100km of the shoreline.

The Western Indian Ocean is a coherent biogeographic, climatic and socio-political region comprising 10 countries – Comoros, France, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa and Tanzania – a mix of mainland continental and island states. The total population is around 220 million, over a quarter of whom live within 100km of the coast.

Covering some 30 million km², the Western Indian Ocean area is equivalent to 8.1 per cent of the global ocean surface, with a total coastline of over 15,000 km. Among the diversity of sub-regions is the Northern Mozambique Channel – a core region for high tropical marine biodiversity. Coral reefs, mangroves, salt marshes, seagrass beds, and both pelagic and deep-sea habitats harbor high biodiversity which supports economies and livelihoods.

The Western Indian Ocean region



Coastal communities are rooted in cultures based on fishing, maritime trade and marine resource use which go back hundreds of years.

But rapid population growth, geopolitical and cultural changes, and globalization of trade in the last half century have altered many of the traditional relationships between the people and their ocean. A new approach for the 21st century is urgently called for.

Today, healthy ocean and coastal ecosystems underpin the wealth of the region, and offer huge potential for sustainable development. This report draws on best available information to illustrate the importance of marine and coastal assets for the region's economies and peoples' livelihoods and well-being. As the analysis underpinning this report demonstrates, the annual "gross marine product" of the Western Indian Ocean region – equivalent to a country's annual gross domestic product (GDP) – is at least US\$20.8 billion. The region's total ocean asset base (or "shared wealth fund") is conservatively estimated to be at least US\$333.8 billion. These values are derived from direct outputs from the ocean (e.g. fisheries), services supported by the ocean (e.g. marine tourism) and adjacent benefits associated with the coastlines (e.g. carbon sequestration)¹. **The Western Indian Ocean's economy is thus comparable to the largest national economies in the region.**

In absolute terms, the annual gross marine product may on first glance appear small compared with the global ocean economy estimated at US\$2.5 trillion. Yet given that several of the countries of the Western Indian Ocean are among the poorest in the world, the ocean's contribution is significant toward alleviating poverty. Of critical importance, for example, are the food and livelihood benefits that the ocean provides but which are not captured in conventional economic analysis.

¹ The results presented here are conservative estimates. The analysis did not measure important intangible values such as the ocean's role in climate regulation and temperature stabilization, the production of oxygen, the spiritual and cultural enrichment the ocean provides, or the intrinsic value of biodiversity. It is also difficult to put a monetary figure on the contribution made by activities such as subsistence fishing where no sale point occurs. Outputs that are not dependent on the ecological functions of the ocean (e.g. offshore mineral extraction or shipping) were excluded, as were assets for which data is not yet available.



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Traditional sailing pirogue in the Western Indian Ocean. It is increasingly only in the most remote parts of the coasts that traditional fishers can still find productive fishing grounds.

FIGURE 1 WHAT IS THE ECONOMIC VALUE OF THE WESTERN INDIAN OCEAN (WIO)?

OCEAN ASSET VALUE IN THE WIO - SHARED WEALTH FUND

Marine assets in the WIO provide considerable value and could provide even more if they are well managed.

US\$ 333.8 bn • TOTAL SHARED WEALTH FUND ASSET BASE



WIO GROSS MARINE PRODUCT

(data from 2015)

Gross Marine Product (GMP) is the ocean's annual economic value.

20.7%

DIRECT SERVICES ENABLED BY THE OCEAN

- 19.0% Marine tourism
- 0.8% Research & development
- 0.5% Security & control
- 0.2% Ocean survey
- 0.1% Cruise industry
- 0.1% Education & training

70.2%

ADJACENT BENEFITS OF THE OCEAN

- 50.0% Coastal tourism
- 14.0% Carbon sequestration
- 6.0% Coastal protection
- 0.2% Marine biotechnology

9.1%

DIRECT OUTPUT OF THE OCEAN

- 7.8% Industrial fisheries
- 1.2% Subsistence fisheries
- 0.1% Aquaculture / mariculture



MANGROVES, CORAL REEFS, SEAFOOD, FISHERS, TOURISM OPERATORS — THEY'RE ALL CONNECTED.

Across the WIO, peoples' livelihoods and income are often inextricably linked to healthy functional ecosystems. When these are damaged, all pay the price.



PRIMARY ASSETS

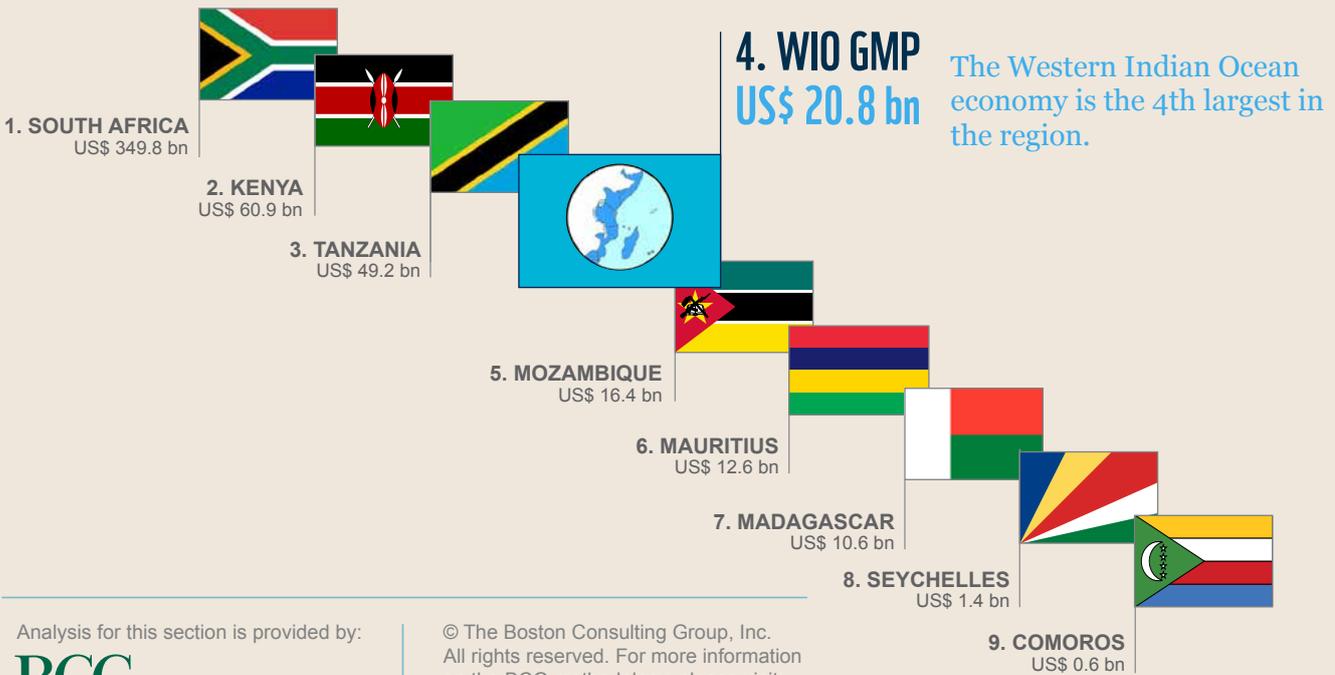
	Marine Fisheries	US\$ 135.1 bn
	Mangroves	US\$ 42.7 bn
	Coral Reefs	US\$ 18.1 bn
	Seagrass	US\$ 20.8 bn

ADJACENT ASSETS

	Productive Coastline	US\$ 93.2 bn
	Carbon Absorption	US\$ 24.0 bn

HOW DOES THE WIO GROSS MARINE PRODUCT COMPARE TO REGIONAL GDPs?

(World Bank 2014)



Analysis for this section is provided by:



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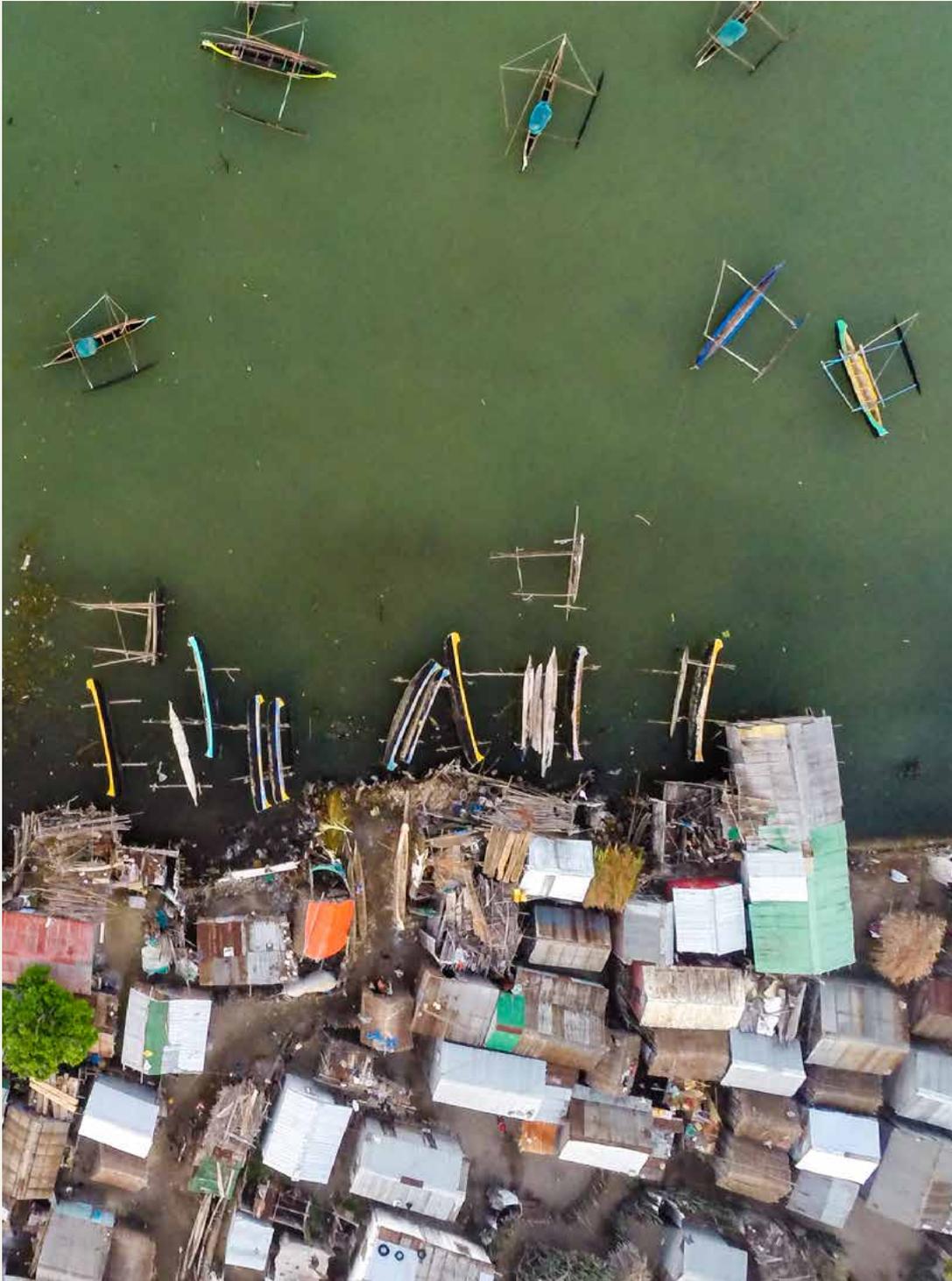
* Data not available for Somalia and France (regional GDP). Projections for 2015 based on World Bank 2014 data.

Two important trends are coming together: Africa is on the brink of transformational change and the use of the ocean is expanding faster than at any point in history. This places the Western Indian Ocean region's leaders at a critical decision point.

Pursuit of the resource intensive pathways of the 19th and 20th centuries, largely driven by industrialized countries, will accelerate the current trajectory towards environmental degradation and “biocapacity deficit”, jeopardizing long-term prospects and social and economic security. **An alternative choice would be for decision makers to instead develop innovative resource-efficient pathways towards sustainable development. The ocean and its assets can play a leading role in achieving this.** Sustaining ocean ecosystems can lift people out of poverty and provide a stable foundation for healthy national economies.

As our current economic system ignores or externalizes most environmental costs, the ocean's benefits are often perceived as provided ‘for free’ and thus frequently taken for granted. Unless their value is recognized and strong action taken to preserve the natural assets that underpin them, they will diminish rapidly over the decades ahead.

Despite the comparatively intact coastal and marine ecosystems of the Western Indian Ocean, there are growing signs of distress in many parts of the region. Many coastal communities are facing increasing economic hardship from degradation of their resource base, due largely to growing pressures from infrastructure development, extractive industries, population growth and climate change. Coral reefs and mangroves are in decline from the combined impacts of local use and global threats. Important fish stocks are under threat from overfishing and inadequate management. Coastal and urban developments are burgeoning with limited planning guidance. The natural capital of the Western Indian Ocean region is being eroded, undermining the ocean's value for present and future generations.



© Garth Cripps

The human footprint on coastal areas in the Western Indian Ocean is growing fast. Effective implementation of strong policies is crucial to steer the region towards a sustainable and inclusive future.

FIGURE 2 STATE OF MARINE ASSETS IN THE WESTERN INDIAN OCEAN (WIO)

RAPIDLY EXPANDING POPULATION



APPROXIMATELY

60 million

PEOPLE LIVE WITHIN 100 KM OF THE COAST ACROSS THE ENTIRE WIO, BUILDING STRESS ON NATURAL RESOURCES.²

Rapid increases in population and consumption levels – coupled with high reliance on coastal and marine resources for sustenance and livelihoods – are the key drivers of overexploitation and degradation of Western Indian Ocean coastal ecosystems.

SHRINKING MANGROVES⁵

↓ **18%** TANZANIA (1980-2005)
KENYA (1985-2010)

↓ **27%** MOZAMBIQUE (1990-2002)

LACK OF PROTECTION

ONLY 2.4%
OF MARINE AREA IS
UNDER SOME FORM OF
PROTECTION IN THE WIO.⁷



SOURCES: 1. Obura *et al.* (in review); 2. CIESIN (2015); 3. FAO (2013); 4. IOTC (2016); 5. UNEP-Nairobi Convention and WIOMSA (2015); 6. UNESA (2015); 7. WDPA (2016); 8. WRI (2011).

CORAL REEFS AT RISK



71-100%

OF REEFS ARE AT RISK IN ALL WIO COUNTRIES

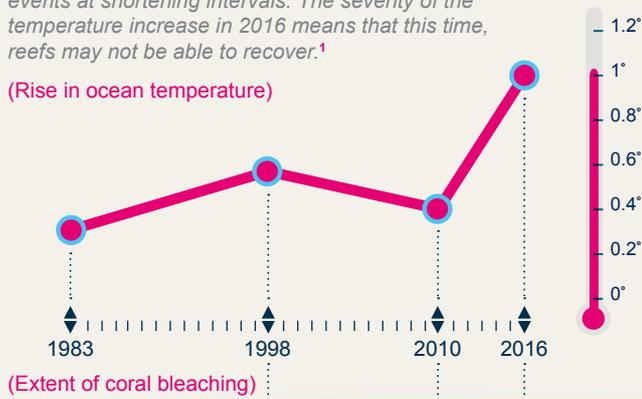
EXCEPT FOR THE SEYCHELLES.⁸

Mass coral bleaching is occurring more frequently in the region, causing large scale coral mortality. 2016 is predicted to be twice as hot as 1998, the worst event recorded so far.

CASE STUDY: CORAL BLEACHING IN MAYOTTE ISLAND

Reefs in Mayotte have suffered four severe bleaching events at shortening intervals. The severity of the temperature increase in 2016 means that this time, reefs may not be able to recover.¹

(Rise in ocean temperature)



(Extent of coral bleaching)



FISH STOCK DECLINE



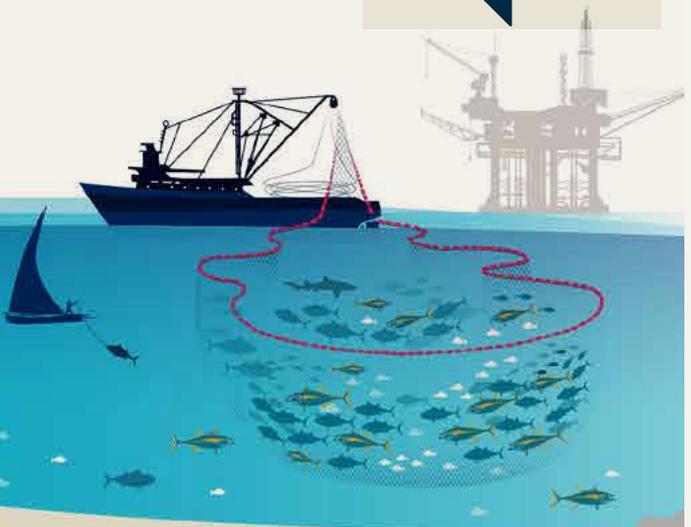
35%

OF THE STOCKS ASSESSED IN THE WIO ARE FULLY EXPLOITED.

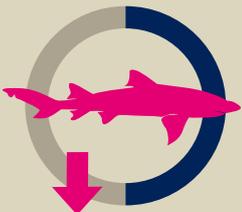
28%

ARE OVEREXPLOITED.³

Risk of damage to habitat from major spill



SHARKS UNDER THREAT



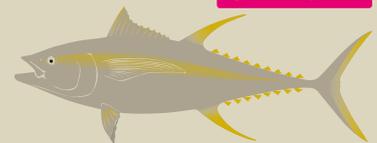
50%

OVER HALF OF 50 SHARK SPECIES ASSESSED IN THE WIO ARE CONSIDERED THREATENED.⁵

YELLOWFIN ON THE WANE

THE YELLOWFIN TUNA STOCK IN THE WIO IS IN DANGER OF COLLAPSE WITHIN A FEW YEARS IF NO ACTION IS TAKEN.⁴

OVERFISHED



THIS IS A MOMENT OF OPPORTUNITY TO RESET THE AGENDA, BEFORE THE “SHARED WEALTH FUND” OF THE WESTERN INDIAN OCEAN IS EXHAUSTED.

This report offers a 15-year action plan containing solutions to reverse negative trends and build an inclusive blue economy that prioritizes sustainable development through investing in natural assets and via prudent economic management. The proposed framework is grounded in the United Nations 2030 Agenda (Sustainable Development Goals) agreed by the international community. It proposes seven essential actions which are intended to reinforce each other and thus need to be approached synergistically:

ACTION 1

IMPLEMENT EFFECTIVE MANAGEMENT OF OCEAN ASSETS

Implement steps to achieve Aichi Target 11 and SDG14 through new ecologically and socially coherent networks of marine protected areas and locally managed marine areas in critical nearshore and offshore habitats, and ensure effective management.

ACTION 2

ENSURE SUSTAINABILITY OF SMALL-SCALE AND INDUSTRIAL FISHERIES AND AQUACULTURE

Implement legislation to apply FAO guidelines, and strengthen community-based approaches and benefit sharing in fisheries and aquaculture, to cover 50 per cent of all fish consumed by 2030.

ACTION 3

TRANSFORM TO 21ST CENTURY CLIMATE-RESILIENT AND CARBON-NEUTRAL ECONOMIES

Incentivize ecosystem-based climate resilience with sustainable finance and implement national strategies for carbon-neutral development by 2030.

ACTION 4

ADOPT A SUSTAINABLE, INCLUSIVE BLUE ECONOMY APPROACH

Apply policies and legislation that internalize environmental values in business practices, provide for more inclusive employment and meet the production and consumption needs of 50 per cent more people by 2030.

ACTION 5

IMPLEMENT INTEGRATED OCEAN PLANNING AND MANAGEMENT

Develop and implement plans for integrated ocean management through marine spatial planning processes at relevant scales (national, sub-regional, sub-national). These plans should align with one another and, by 2030, cover the entire Western Indian Ocean region.

ACTION 6

INVEST IN SOCIAL CAPITAL AS A CORNERSTONE OF FUTURE PROSPERITY

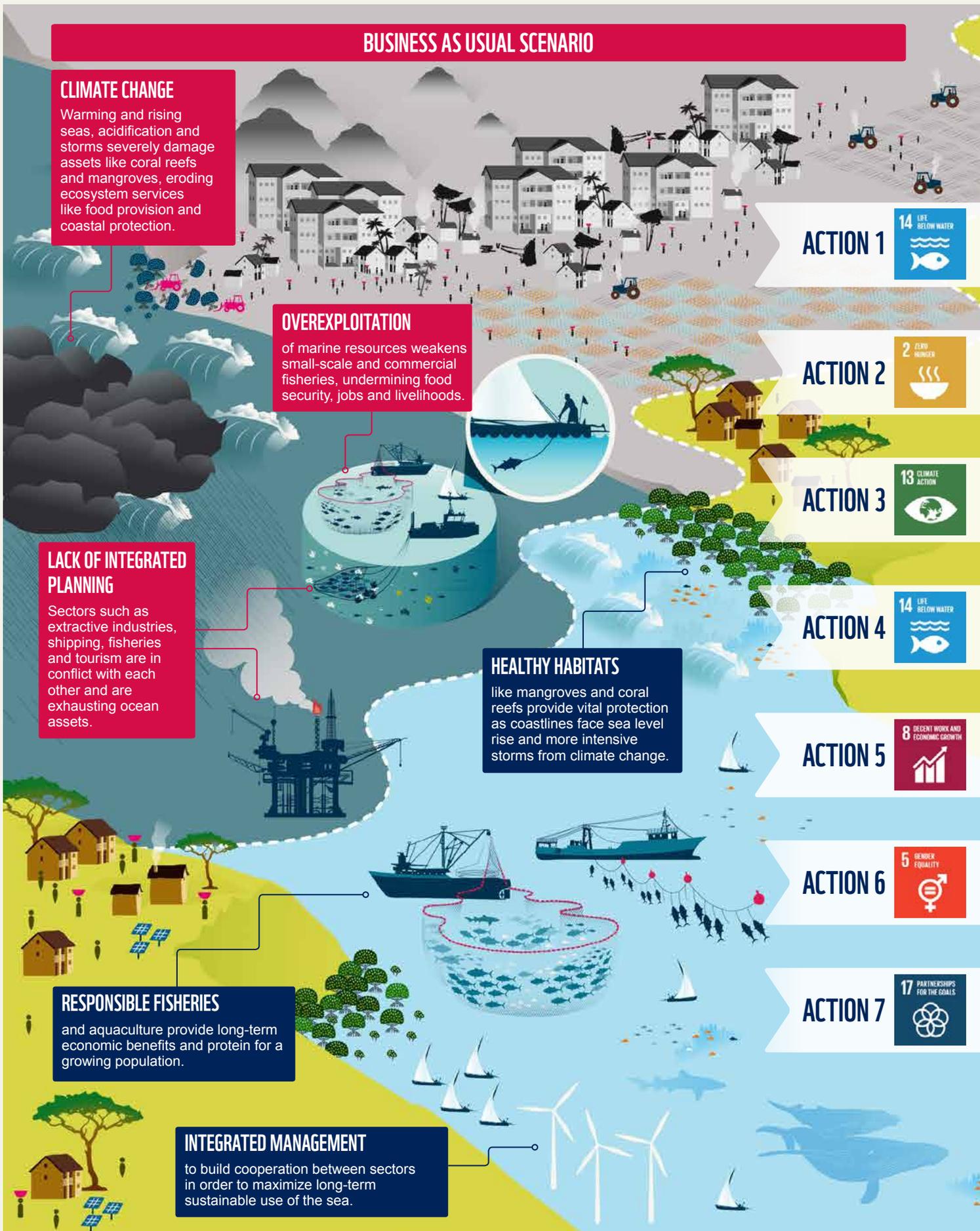
Integrate social, economic and environmental strategies through pursuing all SDGs with a focus on residents of the coastal zones of all Western Indian Ocean countries.

ACTION 7

BUILD PARTNERSHIPS FOR SUSTAINABLE DEVELOPMENT

Create enabling policies and promote best practices that support multi-stakeholder partnerships to secure social, environmental and economic benefits equitably. This should expand the number of partnerships and the proportion of natural assets that they govern.

FIGURE 3 TWO FUTURE SCENARIOS FOR THE WESTERN INDIAN OCEAN



SUSTAINABLE BLUE ECONOMY SCENARIO

Implement Effective Management of Ocean Assets

Ensure Sustainability of Small-Scale and Industrial Fisheries and Aquaculture

Transform to 21st Century Climate-Resilient and Carbon-Neutral Economies

Adopt a Sustainable, Inclusive Blue Economy Approach

Implement Integrated Ocean Planning and Management

Invest in Social Capital as a Cornerstone of Future Prosperity

Build Partnerships for Sustainable Development

WELL-MANAGED PROTECTED AREAS

enhance the health of ecosystems and help maintain food security, income and jobs.

LOCALLY MANAGED MARINE AREA (LMMA) / MARINE PROTECTED AREA (MPA)

HEALTHY AND EDUCATED FAMILIES

contribute to an inclusive blue economy and a sustainable future.

The potential for the countries of the region to achieve their vision in the Strategic Action Programme for the Protection of the Western Indian Ocean (WIOSAP) and prosper from a healthy Western Indian Ocean is high. The above actions provide a blueprint toward this end. In the process, they will also contribute toward implementation of the SDGs, as well as the 2015 Paris Climate Agreement. At the continental scale, the African Union's Africa Integrated Marine Strategy and Agenda 2063 provide an overarching vision for a sustainable and inclusive blue economy, framing Africa's pivot toward the ocean to support long-term sustainable growth.

There can be no healthy economic future for the countries of the Western Indian Ocean without protection and restoration of the ecosystems that underpin industries like fishing and tourism. The time is now for a transformation to economic practices that include all relevant stakeholders and that value and nurture the natural asset base.

Taking this path will require committed and visionary leadership to make a broad array of supportive decisions and take bold action. Leaders in the Western Indian Ocean region are poised to demonstrate to the world how to navigate towards a sustainable and inclusive blue economy.

Within a broader fabric of sustainability policies and practices, the actions identified here can assist the countries of the Western Indian Ocean to secure and maximize the long-term potential of their ocean assets to provide the shelter, food, income and jobs essential to the region's future. This report is a call to leaders within and outside the region to act together – with a strong sense of urgency – to take the necessary, tangible steps towards an inclusive, sustainable blue economy, in the interest of the people of the region and environment that supports them.



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Learning with joy, against the odds. By ensuring the integration of social, economic and environmental strategies, the UN Agenda 2030 (Sustainable Development Goals) aims at creating a better future for all.



THERE CAN BE NO HEALTHY ECONOMIC FUTURE FOR THE COUNTRIES OF THE WESTERN INDIAN OCEAN WITHOUT PROTECTION AND RESTORATION OF THE ECOSYSTEMS THAT UNDERPIN INDUSTRIES LIKE FISHING AND TOURISM.



The Western Indian Ocean in numbers



60 MILLION

About 60 million people live within 100km of the coast across the Western Indian Ocean

US\$333.8BN

The overall value of ocean assets in the Western Indian Ocean is more than US\$333.8 billion



4TH

The economic output of the Western Indian Ocean makes it the fourth largest economy in the region

2.4%

Only 2.4 per cent of marine areas are under some form of protection in the Western Indian Ocean



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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SUSTAIN OUR SEAS