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Scoping Study on Blue Economy Opportunities in Mozambique

Unlocking business solutions that benefit people, ocean and climate in Inhambane and Cabo Delgado seascapes

Executive Summary

February 2024

Supported by:

Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection

based on a decision of the German Bundestag

IKI INTERNATIONAL CLIMATE INITIATIVE

IUCN Regenerative Blue Economy Context in WIO region

- The **Great Blue Wall (GBW) Initiative** was launched in 2021 with the objective of creating an Africa-driven response to the interconnected impacts of climate change, biodiversity loss, and economic crises aiming to achieve positive nature, livelihoods and transformation gains through seascapes that are linked through a living blue wall comprising critical ecosystems such as mangroves, seagrasses and corals.
- GBW is structured on three pillars: **blue planet** (strengthening governance of seascapes), **blue nature** (creating bold nature-based solutions and coastal and marine ecosystem valuation) **and blue economy** (creating blue jobs and leading a regenerative blue transformation). These are underpinned by **blue partnerships** and **bold political momentum.**
- The seminal **Blue Futures Ministerial Conference on Blue Economy and Climate Action**, held under the patronage of the Presidency of the African Union by the Union of Comoros, and enshrined in the "Moroni Declaration", explored the fundamental linkages between the Great Blue Wall, the Blue Economy and the African Continental Free Trade Area (AfCFTA).
- As its outcome, an **African High-Level Panel on Regenerative Blue Economy** was announced, endorsed at the highest level by WIO countries, signalling the key role that Mozambique will have to play in the regional regenerative blue economy agenda in Africa.
- Furthermore, a **Regenerative Blue Economy Framework** is being developed to guide policy and investment actions into key sectors of the blue economy that support regeneration and nature-positive transformation. The process, launched at the Ocean Innovation Africa Summit (OIAS) in Cape Town, intends to provide a framework that drives research and innovation, indigenous people and local community (IPLC) ocean empowerment, and blue investment and private sector action.
- The **LEAP Project (Locally Empowered Areas of Protection), funded by the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)** implements action in four countries (Kenya, Tanzania, Mozambique and Seychelles), aims to enhance coastal and marine socio-ecological resilience and biodiversity conservation in the Western Indian Ocean. At the core of the project is to open opportunities for renewed and equitable governance mechanisms for all in society to avoid further opportunity costs on local and indigenous communities living in and around target areas and their seascapes.
- This project supports the **assessment of blue economy opportunities across WIO countries**, informing government, private sector and local communities on blue value chains to be pursued based on a deep analysis of local context, market conditions, ecological and socioeconomic benefits to local communities as the ultimate beneficiaries of the project.

The study aims to identify viable and inclusive value chains in the coastal provinces of Inhambane and Cabo Delgado in Mozambique

What:

- **A study assessing the potential and analyzing the constraints to generating social, economic and environmental value** in Blue Economy value chains of Inhambane and Cabo Delgado, and **generating recommendations to support the sustainable economic development of coastal communities**

Why:

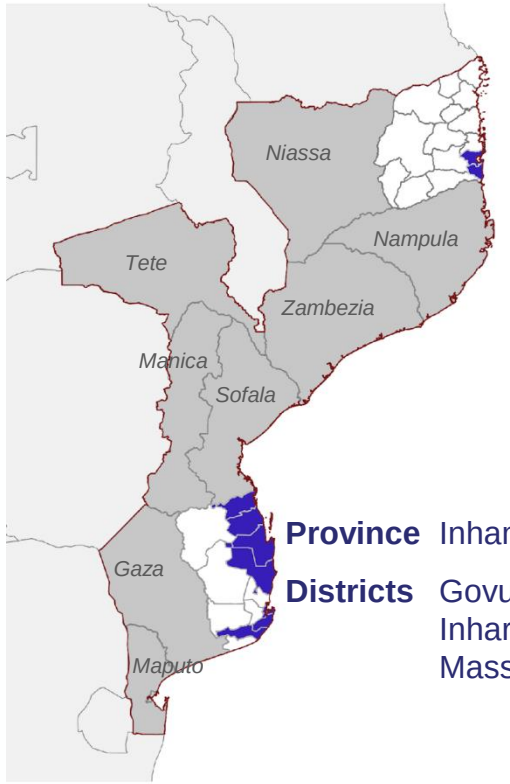
- **Develop the fact base to influence future Blue Economy investments and programming** in Inhambane and Cabo Delgado
- **Create an opportunity to assist** provincial governments and operational development partners to develop a robust Blue Economy action plan
- **Develop a replicable approach** to other Mozambique and SWIO seascapes

How:

- **Establish the baseline**, engaging with 50+ stakeholders involved in Mozambique's BE (Government, international org./NGOs, development actors, conservation actors, private companies, independent experts)
- **Prioritize BE opportunities**, identifying 3-5 value chains offering the greatest potential across i) Inclusive employment opportunities, ii) Climate and environmental impact, iii) Operational feasibility
- **Deliver key recommendations for strategic transformation** of prioritized value chains, detailing required interventions to address existing barriers and expected social, economic and environmental impact

When: **August – December 2024**

Where:



Province Cabo Delgado

Districts Mecúfi, Metuge, Pemba

Province Inhambane

Districts Govuro, Inhambane City, Inharrime, Inhassoro, Jangamo, Massinga, Vilanculos

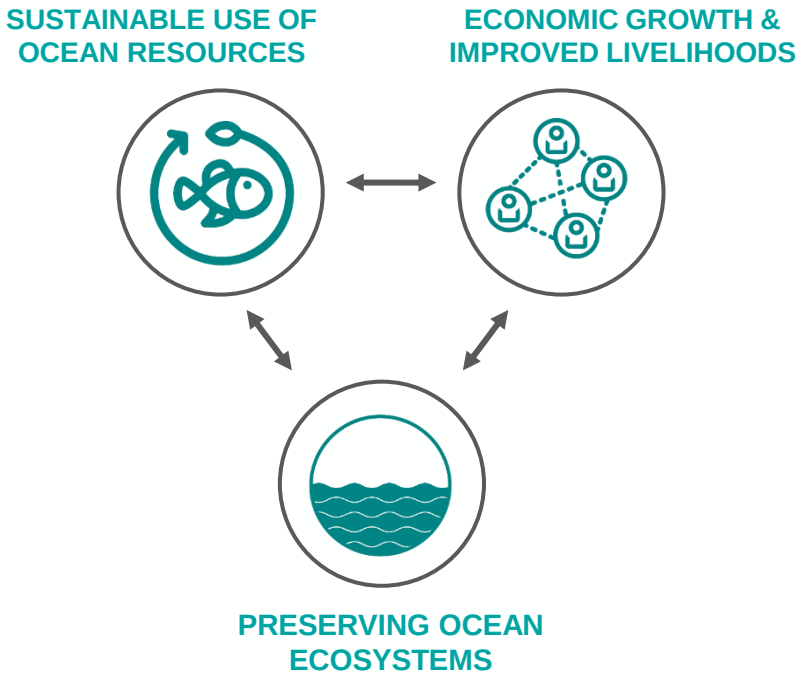
Situated in East Africa, Mozambique maintains a relatively flat annual GDP growth of ~2% with an economy defined by natural resources

	Mozambique overall	Coastal areas
Environmental	**Mozambique has a wealth of natural resources and landscapes** but is one of the most vulnerable countries to climate change, with intensification of extreme weather events (cyclones, storms, floods, droughts)	**The coast of Mozambique is vast and rich in natural resources** • 3rd longest coastline in Africa • 43% of the country's territory is sea-based, with one of the largest fisheries ground in the WIO region (Sofala Bank) • Largest mangrove forests in the WIO region, existence of Key Biodiversity Areas (KBAs)
Economic	**The country's economy is defined by natural resources** • 64% of the population lives below the poverty line (0.65$/day) • 27% national unemployment rate • Exported $8.5B in 2021; top exports included coal briquettes (21%), raw aluminum (17%)	**There is differential economic opportunity along the coast** • 26% of population works in fisheries or tourism • Only 0.7% of exports are from fish-related products • Primary exports from coast include petroleum gas, crustaceans, & fish
Social	**The population is young; many suffer from conflict in the north** • 40% of the population is under 14 years old • > 800K internally displaced people (IDPs)	**Many are reliant on the ocean for their livelihood** • 66% of the country' population lives in coastal zones • 27% of protein intake comes from fish

Source: IGC, OEC, Stakeholder interviews

The Blue Economy represents an opportunity to drive economic growth and development in Mozambique

The Blue Economy integrates 3 components…



The Blue Economy is a sector that aims to develop ocean industries in a way that is inclusive of and beneficial to local communities while ensuring that ecological, economic and social needs are met and managed.

…that together can benefit the development challenges that Mozambique faces

	Challenge	*Blue Economy's potential to address challenge*
Environmental	Resource depletion	• Enable resource efficiency with more **sustainable methods**
	Pollution and habitat destruction	• Prioritize **nature-positive economic development**
	Land degradation	• **Move away from destructive practices** causing degradation
	Inadequate regulation enforcement	• Empower local communities to **self-regulate fishing stocks**
Economic	Poverty & inequality	• Develop **new and existing value** chains to benefit local communities
	Lack of economic diversification	• Develop **opportunities in new sectors** and encourage income diversification
	Youth unemployment	• Provide **training opportunities** and job connections for youth
Social	Education	• Initiate **environmental education** and conservation programs
	Gender inequity	• Develop sectors that are **inclusive of women**

Source: USAID, Stakeholder interviews

Both Cabo Delgado and Inhambane rely on marine resources from their diverse ecosystems but face different challenges

This research focuses on Cabo Delgado & Inhambane provinces

While the conflict in Cabo Delgado inhibits its development, Inhambane is at significant risk of climate change

	Environmental	Economic	Social
Cabo Delgado	• Fishing is abundant in conflict-affected regions, areas IDPs face significant overfishing pressure • Oil & gas deposits	• Highly disrupted due to conflict – many companies left area • Significant foreign aid investment for emergency relief	• Many internally displaced people (IDPs) • Male-dominant society, women have few rights
Similarities between provinces	• At risk of harmful natural resource extraction • Long coastlines, mangrove areas, sea grasses & archipelagos	• Economic growth impeded by weak infrastructure • Main market for sales is local	• Limited access to health services and education • Accustomed to quick profit turnaround from fishing
Inhambane	• Has a large peninsula and bay area in the south of the province • Several diverse ocean landscapes, including dunes and river deltas	• Significantly driven by tourism • Close to the capital, Maputo, with relatively better access to markets	• More inclusive of women, but still primarily male-dominant society • Extremely diverse dynamics within each community

Source: Stakeholder interviews

Fishery based activities are central to coastal economies, however communities also rely significantly on land-based industries

Identified value chains in Cabo Delgado and Inhambane provinces*
Based on community and public & private actors' information

FISHERIES & AQUACULTURE

Aquaculture
- Tilapia aquaculture
- Shrimp aquaculture
- Fish feed creation

Mariculture
- Crab fattening
- Seaweed cultivation
- Sea cucumber aquaculture
- Mollusk farming

Fisheries use
- Sustainable fishing methods
- Fresh fish cold storage
- Seafood transport
- Octopus fishing and processing

CULTURE, TOURISM & SPORTS

Tourism
- Hospitality staffing and business
- Restaurants & bars
- Tourism guides
- Water transport

Culture
- Artisanal craft supply and sales

NATURAL RESOURCES, ENVIRONMENT & CIRCULAR ECONOMY

Environmental protection
- Blue carbon finance through environmental rehabilitation
- Community protected areas

Land-based production
- Horticulture production
- Mango drying
- Honey production
- Salt mining
- Livestock farming
- Cashew farming
- Coconut farming

Resource management
- Charcoal briquettes creation
- Waste recycling and repurposing

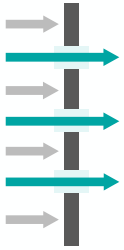
Due to their significant footprint land-based production value chains were also considered despite not being included in the POLMAR strategy

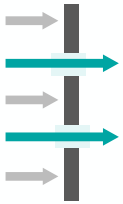
** Definitions of each value chain can be found in the appendix of the report*

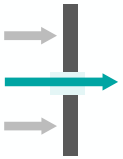
Value chains are evaluated through community, environment and market filters to identify the ones with the most potential impact

Value chains selection based on potential impact

Prioritization in each seascape

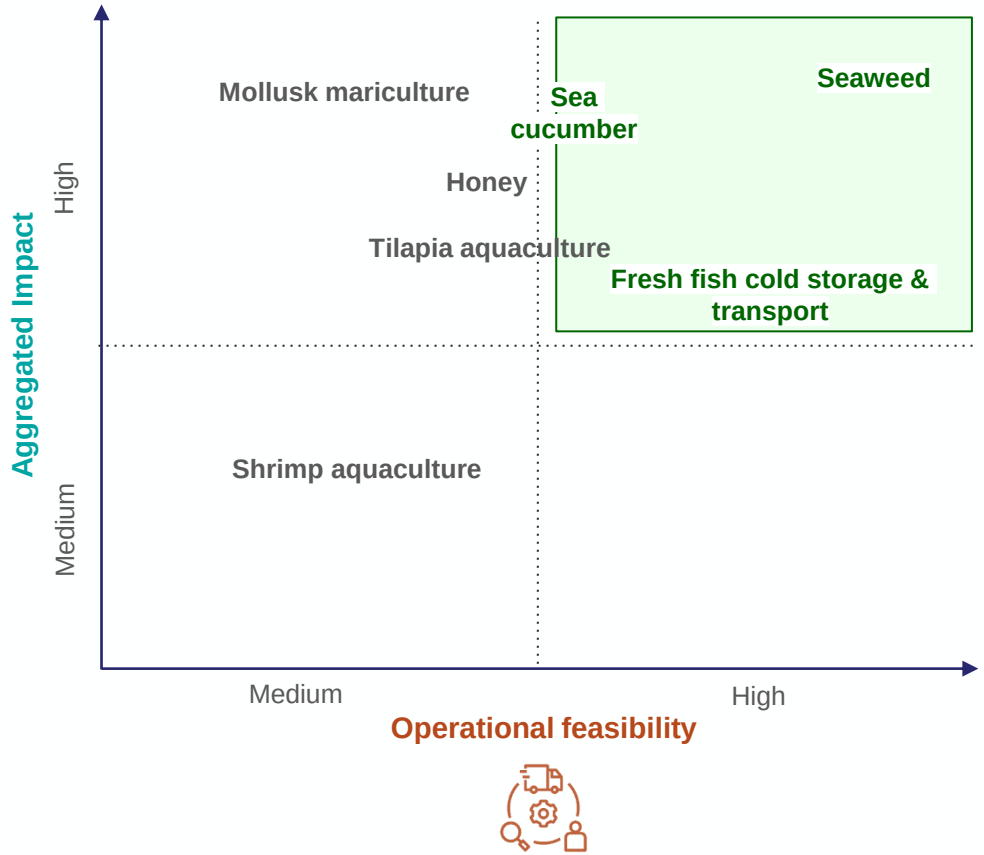






Analysis dimension	1 Community impact	2 Environmental Impact	3 Market conditions	4 Operational feasibility
Indicators	• Inclusive economic potential • Inclusion of women and youth • Food security support	• Ecosystem and biodiversity • Pollution sources • Climate adaptation potential	• Supply dynamics • Demand dynamics • Existing infrastructure	• Implementation requirements • Wider ecosystem considerations • Execution aspects
Scoring criteria	• **11 underlying scoring criteria** are used to assess each value chain • **Value chains scoring above 75%** advance to the next filter • **Inclusive economic potential dimensions carry higher weight**, with a mandatory requirement for women's inclusion (any value chain that excludes women is disqualified)	• **10 underlying scoring criteria** are applied to each value chain • **Value chains scoring above 50%** on average advance to the next stage • **Impact on the existing ecosystem** is considered the critical category	• **7 supply and demand criteria** are applied to assess each value chain • **Top scoring value chains are chosen** for in-depth analysis • **Value chains with pre-existing supply and production infrastructure** within the surveyed provinces are given additional weight	• Financial and technical assistance • Main cost drivers • Market linkages • Existing industry and environment • Private sector environment • Risks • Timeline

In Cabo Delgado, value chains with the most feasibility and impact are seaweed, sea cucumber and fresh fish cold storage and transport



Selected value chains	Impact	Feasibility	Opportunity
Seaweed cultivation	• Low cost entry • Inclusive of women	• Ideal natural environment • Low input model	• Robust and growing global demand
Sea cucumber aquaculture	• Improves water quality • Tidal cultivation done by women	• Suitable natural environment • Require long growth period	• Luxury product in high demand • Processing is done on site
Fresh fish cold storage and transport	• Higher income generation from existing harvests	• Aligns with existing industry	• Strong demand for fresh fish in country

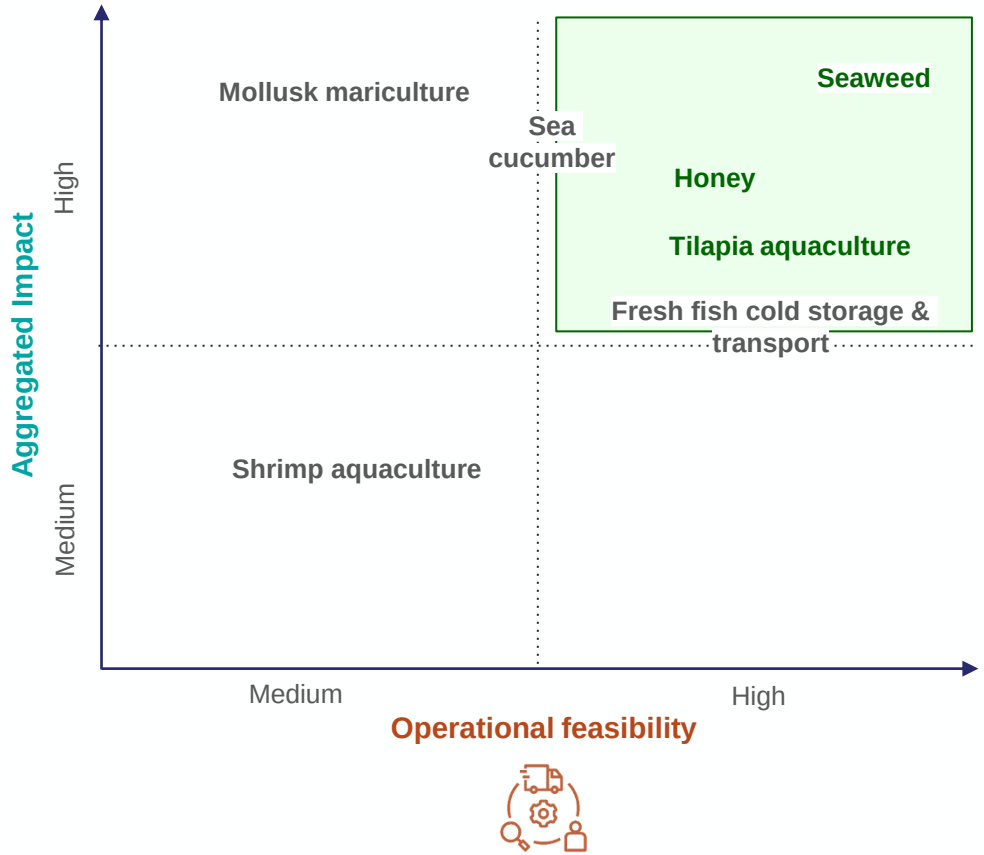
Non-selected value chains	Impact	Feasibility	Opportunity
Mollusk mariculture	• Strong income generating potential	• Requires existing cold chain infrastructure	• Strong global demand and suitable environment
Shrimp aquaculture	• Reduces pressure on wild stocks	• Significant financial investment required for start up	• Existing national and global demand
Tilapia aquaculture	• Reduces pressure on wild caught catch	• Lower demand due to availability of wild fish	• Can fill gap in demand for fresh fish
Honey production	• Incentivizes environmental preservation	• Lack of aggregation structures and commercial market	• Potential for high quality product creation

Note: *Primary focus on aquaculture value chain is aligned with Mozambique's Strategy for the Development of Aquaculture (EDA) in Cabo Delgado*

Opportunities for value creation in Cabo Delgado include seaweed harvesting, fresh fish cold storage and sea cucumber production

Value Chain	*Goals*	*Market value creation*	*Job creation potential*	*Average monthly income*	*Challenge and risks*
 Seaweed harvesting	1 Create a seaweed harvesting system led by smallholders 2 Establish seaweed aggregation structures 3 Establish strong offtake agreements	$ 15 – 18 million in sector revenue	15,000 80% women's participation	$85	• Limited existing production • Significant volumes required for offtake • No existing aggregation structures • No processing capacity
 Fresh fish cold storage and transport	1 Develop cold chain infrastructure 2 Improve transportation and aggregation networks 3 Enhance market access opportunities and revenue	$15 – 20 million additional value from reduced post harvest loss	n/a	$70	• Expensive start up costs • Unreliable and costly electricity • No existing aggregation structures • Weak infrastructure
 Sea cucumber production	1 Develop a sea cucumber production base 2 Create a sea cucumber aggregation structure 3 Enhance regulations for sustainable sea cucumber harvesting	$ 1 million in sector revenue	1000 80% women's participation	$50	• Inexistant production knowledge • Extended timelines to profitability • No existing aggregation structures • Competition with wild captures stocks

In Inhambane, value chains with the most feasibility and impact are seaweed, honey and tilapia aquaculture



Selected value chains	Impact	Feasibility	Opportunity
Seaweed cultivation	• Low cost entry • Inclusive of women	• Ideal natural environment • Low input model	• Robust and growing global demand
Tilapia aquaculture	• Steady revenue generation	• Historically farmed in Inhambane	• Meet growing demand for fresh fish
Honey production	• Requirement for unpolluted area incentivizes environmental protection	• Significant suitable natural area for production	• Unique, high quality product creation potential

Non-selected value chains	Impact	Feasibility	Opportunity
Mollusk mariculture	• Strong income generating potential	• Requires existing cold chain infrastructure	• Strong global demand and suitable environment
Shrimp aquaculture	• Reduces pressure on wild stocks	• Significant financial investment required for start up	• Existing national and global demand
Fresh fish cold storage and transport	• Would reduce waste in existing catches	• Aligns well with existing fish sale practices	• Existing market infrastructure to support improved sales
Sea cucumber aquaculture	• Reduces pressure on wild stocks	• Requires setting up the value chain from scratch	• Strong global demand

Opportunities to unlock value in Inhambane exist by developing seaweed harvesting, tilapia aquaculture and honey production

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 Tilapia aquaculture	1 Resolve production obstacles that impede expansion 2 Improve capacity to meet market demand 3 Accelerate the pace of market acceptance of tilapia	$ 20 – 25 million in sector revenue	8,000 40% women's participation	$87	• Feed costs are extremely expensive • Strong technical knowledge required • Competitive market landscape
 Honey production	1 Shift artisanal producers to commercial grade production 2 Establish processing capacity and market connections 3 Enhance infrastructure and certification capabilities	$ 7 million in sector revenue	20,000 40% women's participation	$30	• Transitioning away from damaging traditional practices • Poor infrastructure for aggregation • Expensive processing equipment

Opportunities to unlock regenerative blue economy approach in Mozambique and across WIO region

- Alignment with Mozambique Blue Economy Strategy (to be published in 2024)
- Support local market opportunities and sustainable blue economy practices at seascape level
- Contribute for blue economy market opportunities in Mozambique
- Support development of regional fisheries/blue food value chains in Mozambique and across WIO region – continuity to ongoing work in Tanzania, Madagascar, Mozambique and other WIO countries
- Contribute for the Regional marine biotech sector (especially pertinent considering that the Africa group is very keen to understand and unlock MGR/DSI potential especial under BBNJ approach)
- Support regional R&I framework
- Contribute for regional innovative blue finance mechanisms
- Support a strong regional position against harmful blue economy practices

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