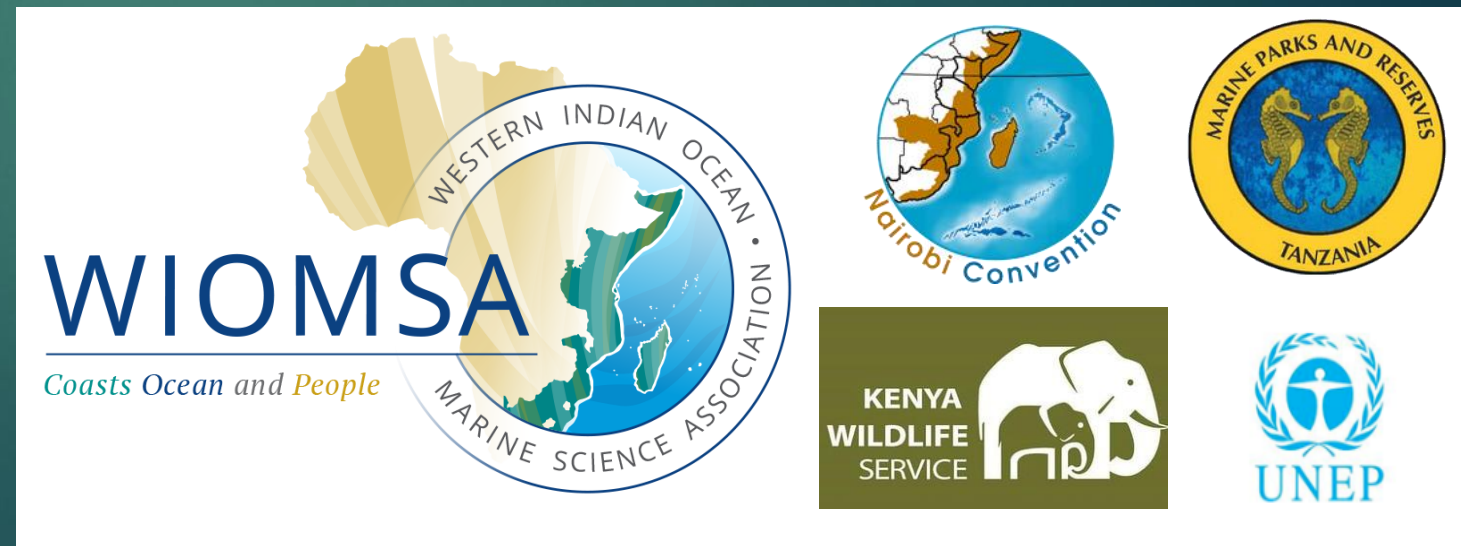


# Economic valuation and identifying potential investment opportunities for the Trans-Boundary Conservation Area (TBCA) between Kenya & Tanzania

Sixth WIOSAP PSC Meeting

7<sup>th</sup> July 2022

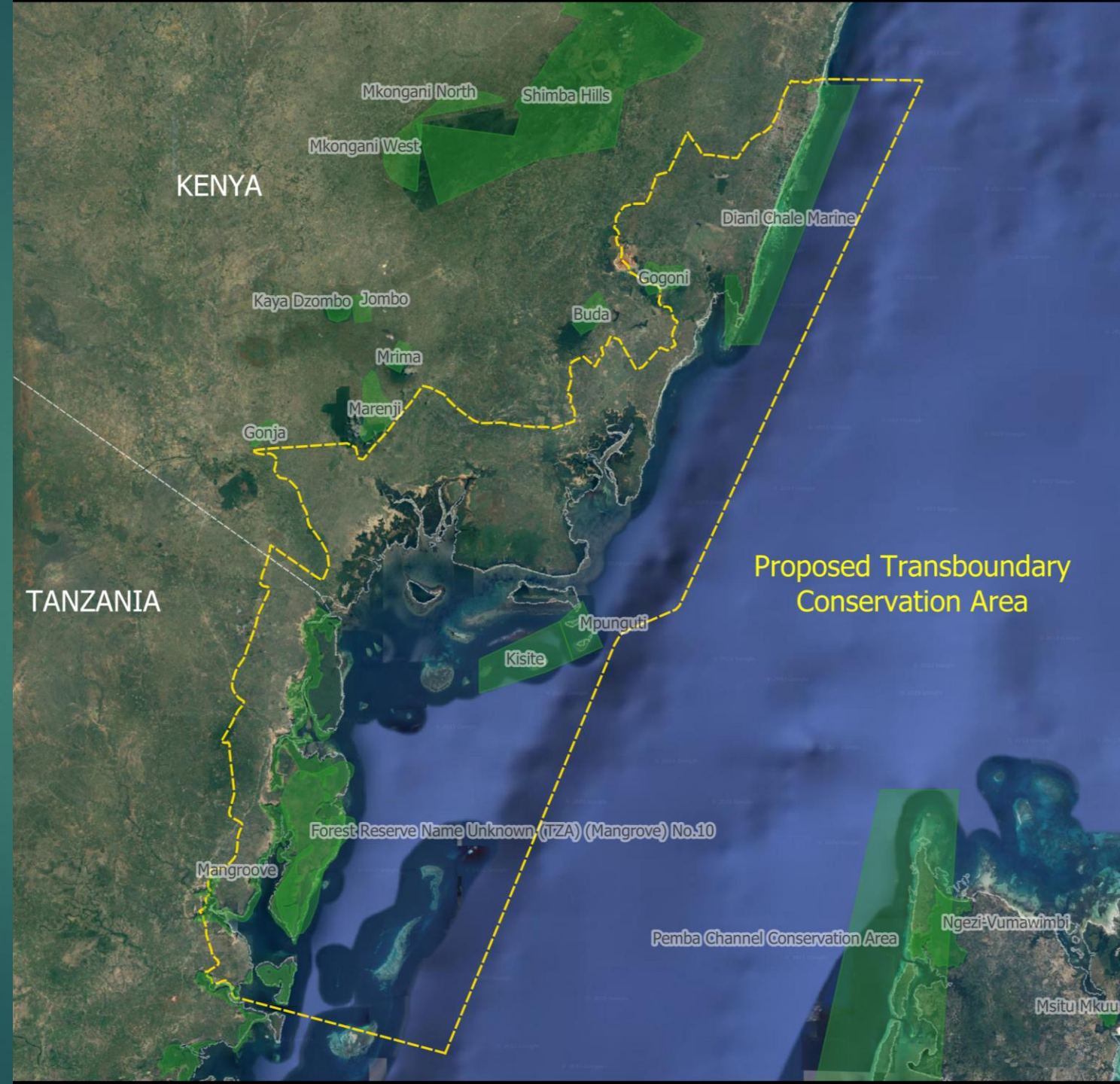
Kyle Harris, Jackie Crafford,  
Micah Moynihan, Marco Vieira,  
Bernice Macquela.



# Project Background & Aims

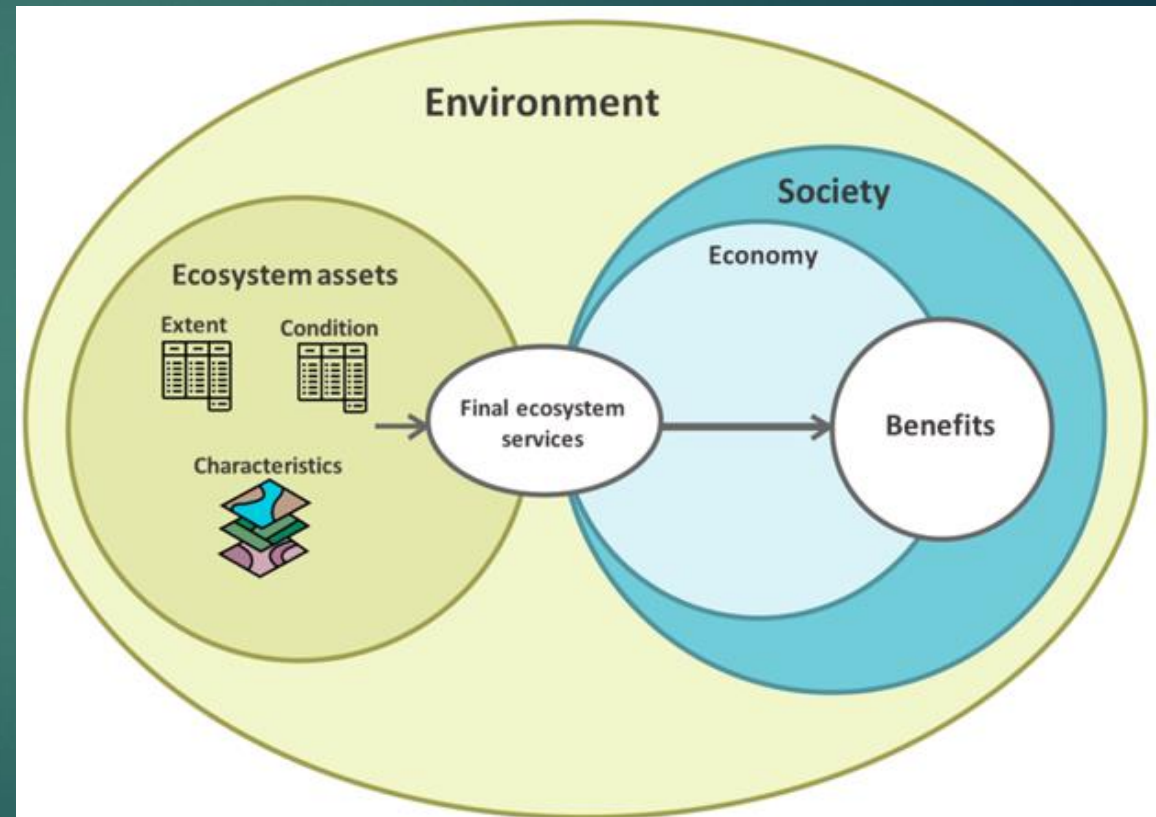
► Economic valuation for the development of a business case for the collaboratively managed area.

1. The value of the resources.
2. Future management scenario(s) to ensure ecological risk management, sustainable use and optimal benefits flows.
3. Investment opportunities to optimize the benefits.
4. Unpack bio-finance options for the funding of the TBCA.

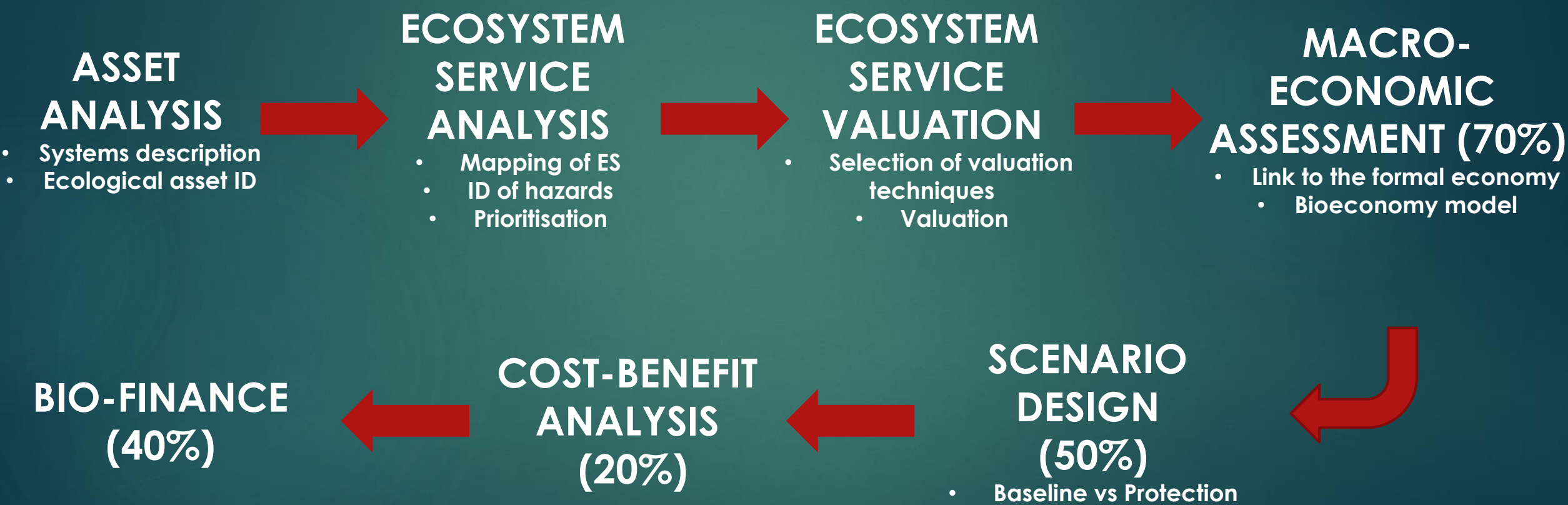
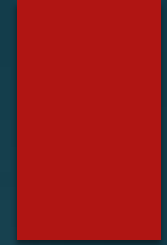


# Ecosystem Service Valuation (ESV)

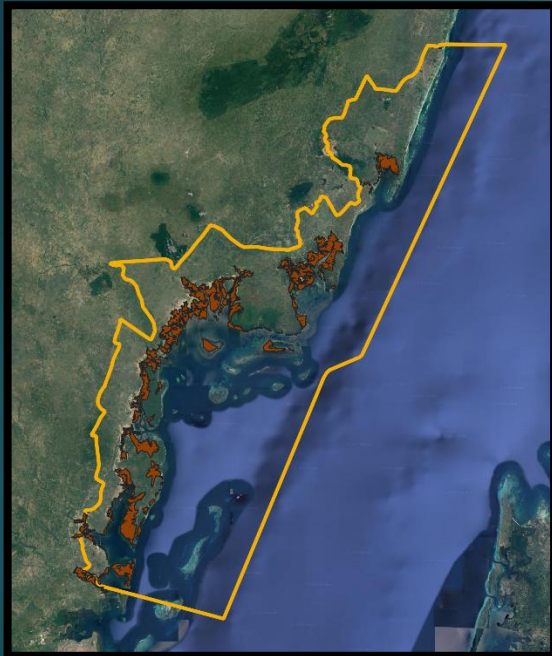
- ▶ The United Nations Statistics Division's (UNSD) System of Environmental Economic Accounting (SEEA).
- ▶ The Economics of Ecosystems and Biodiversity (TEEB).
- ▶ Guidelines on Methodologies for the Valuation of Coastal & Marine Ecosystems (Brander, 2019).



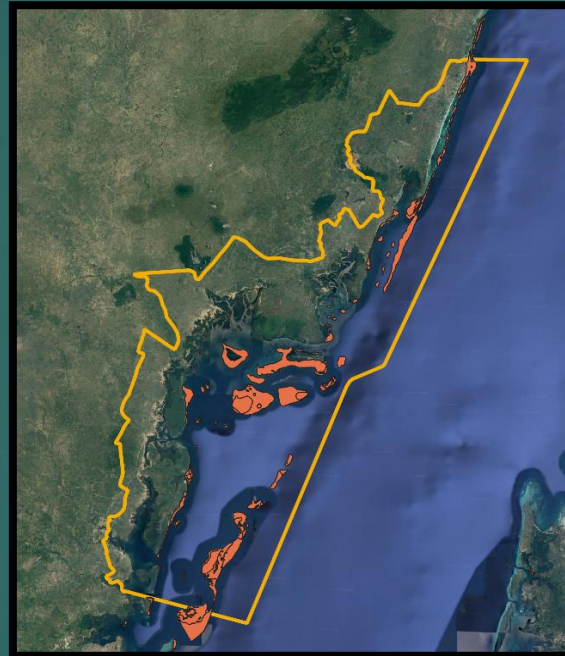
# Methodological Approach



# 1. System Description & Ecological Asset Identification



Mangroves  
9 000 – 11 000 ha



Coral reefs  
36 500 ha



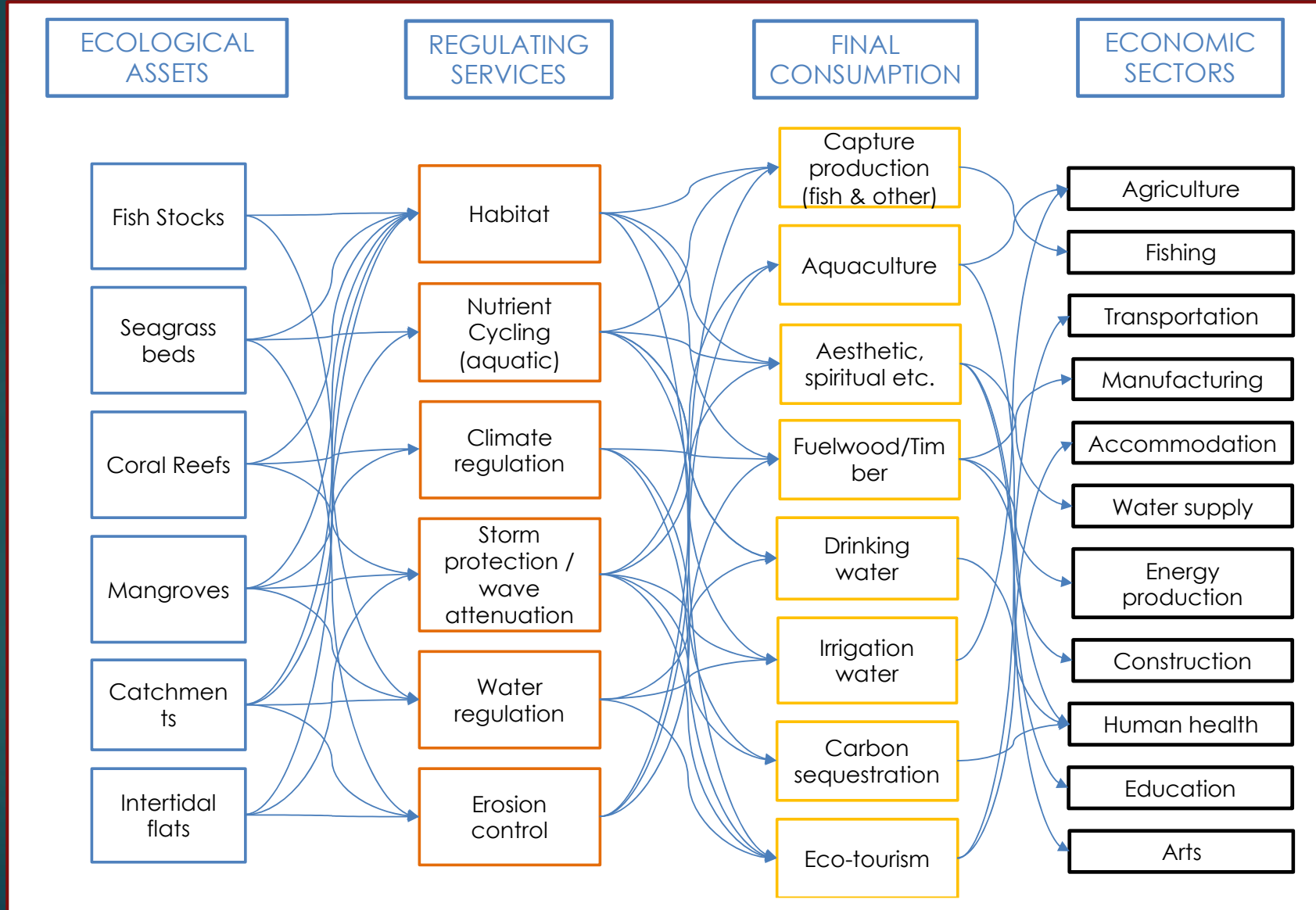
Tidal flats  
17 800 ha



Seagrass  
19 000 ha

REF: Joint Technical Paper for the TBCA (WIOMSA, 2019)

# 2. Ecosystem Service Analysis



# 3. Comparative Risk Assessment (CRA)

Ecosystem Service Provided (TEEB, 2013)	Risk of Status quo Scenario to ES (L-Low; M-Medium; H-High; E-Extreme)							
	Mangroves	Seagrasses	Tidal Flats	Freshwater Systems	Coral Reef	Shelf Zone	Oceanic Zone	Fish Stock
Food provisioning	E	E	H	H	E	M	L	E
Fresh water provisioning	L			M				
Raw materials (Fuel and Fibre)	H			L				
Biochemical and Genetic Resources	M	H	M	L	H	M	L	H
Climate Regulation	E	E	L	L	M	L	L	
Water Quantity Regulation	L	L	L	M				
Regulation of extreme events	E	H	H	M	H	L		
Waste Assimilation	E	E	M	H		L		
Sediment Regulation	E	E	H	H	E	L		
Landscape and Amenity Value	M	L	L	H	M	L	L	E
Ecotourism & Recreation	H	H	H	H	E	M	L	H
Educational and Inspirational Value	E	E	H	M	E	M	L	E
Aesthetic Appreciation	E	H	H	H	E	L	L	L
Spiritual & cultural heritage, Sense of place	H	H	H	M	M	L	L	E
Habitat	E	E	H	H	E	H	H	E

# 4. Ecosystem Valuation

## Bioeconomic model

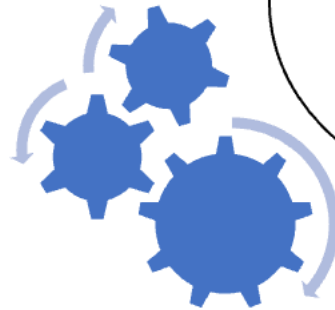
### Valuation methods

Production function

Market pricing

Revealed preferences

Damage cost



Changes in ecological infrastructure

Changes in economic environment



# Ecosystem Service Valuation 1



## Food Provisioning

**ES Value:** Between 12 & 14 million US\$/annum

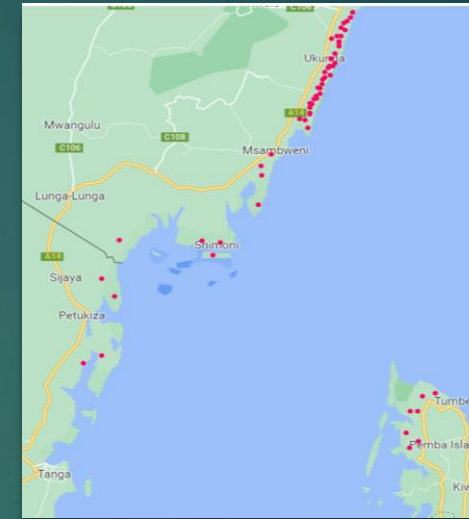
**Asset Value:** 182 – 216 million US\$



## Raw Materials

**ES Value:** Between 1,6 & 2,5 million US\$/annum

**Asset Value:** 22 – 32 million US\$



## Tourism & Recreation

**ES Value:** Between 65 & 117 million US\$/annum

**Asset Value:** 996 – 1,7 billion US\$

# Ecosystem Service Valuation 2



## **CONSOLIDATED VALUE:**

**ES VALUE: Between 125 & 223 million US\$/annum**

**ASSET VALUE OF THE TBCA: Between 1,8 & 3,3 billion US\$**

# Way Forward – Estimated Completion Date: End September

1. Stakeholder consultation.
2. Scenario Design & Cost-Benefit Analysis.
  - ▶ Determine the costs of the implementation of the TBCA.
  - ▶ Develop the CBA for comparing the scenarios: Business as usual vs: Protection.
3. Bio-Finance
  - ▶ Provide options for financing the proposed TBCA.
    - ▶ Blue carbon credits (Mauritian case study).
    - ▶ Debt for nature swaps (Galapagos Marine Reserve).
    - ▶ Biodiversity offsets.
    - ▶ Conservation bonds (Green Bonds e.g., Rhino Bond).
    - ▶ Community-based grants/incentives.

