

# Assessment of ecosystem services in coastal Kenya using TESSA-inspired Nominal Group Technique

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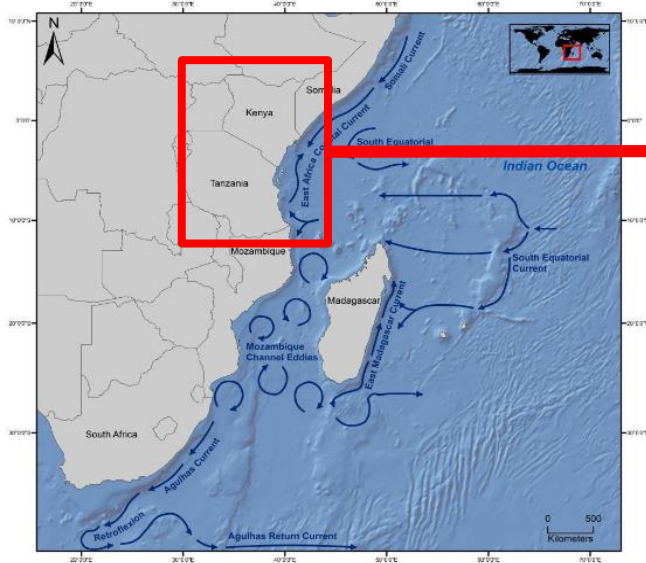
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# 1. Context: Transboundary Conservation (TBC) along the Kenya-Tanzania border

**TBC:** The *management* and *governance* of *shared resources* that *span* national *borders*

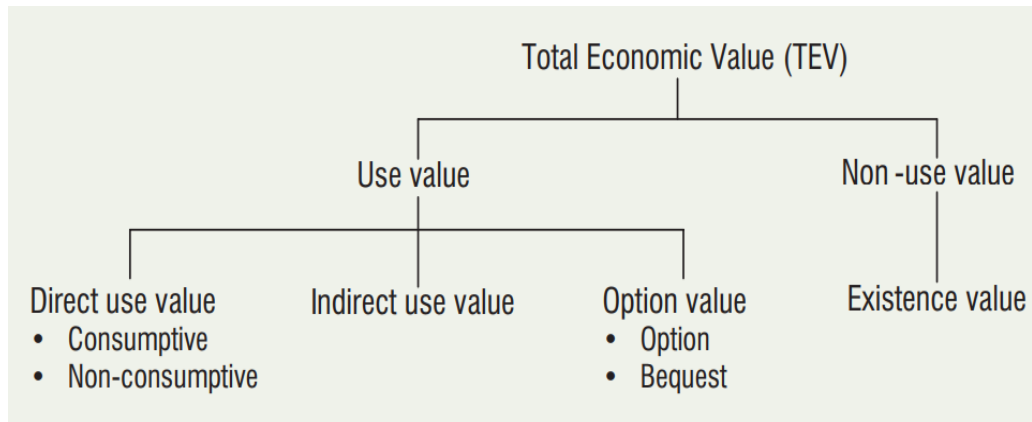


The **Western Indian Ocean (WIO)** countries connected by oceanic currents (arrows). Source: Crochelet et al. (2016).

Source: KWS & MPRU (2015)

Research was carried out within the frame of the TRANSCOAST and EVAMAB projects, on Trans-boundary conservation and ecosystem services assessment.

# 1. Use & Non-use values of Ecosystem Services (ES)



Total Economic Value (TEV) differentiating *use* and *non-use* values of ecosystems. Adapted from World Bank (2004).

Provisioning, regulating & supporting

Cultural

## 2. Objectives of this study

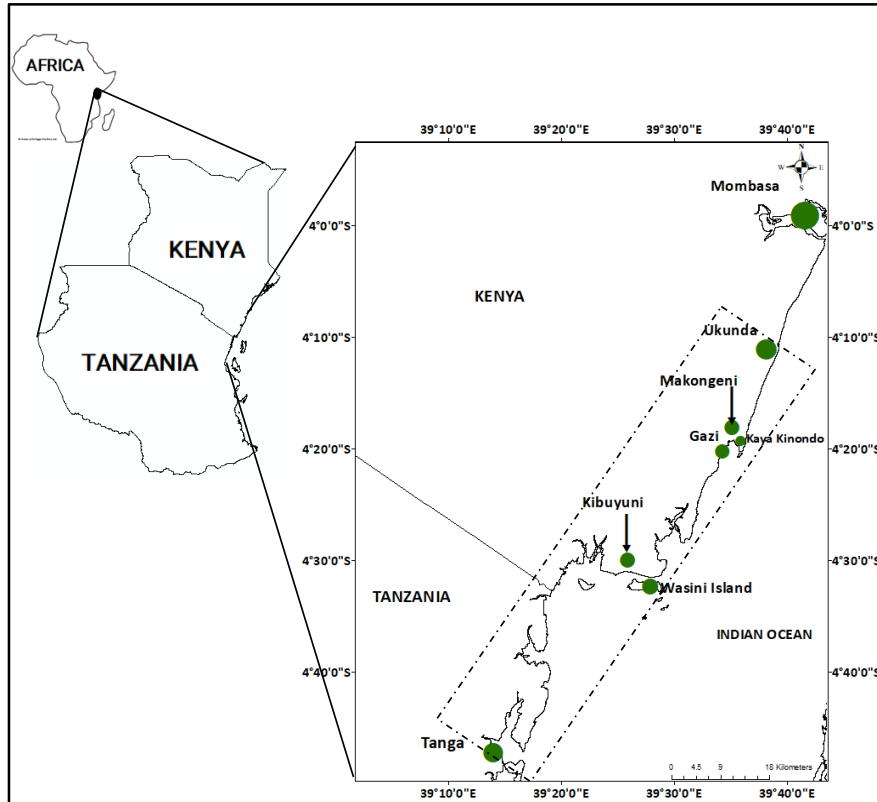
### GENERAL

*Assess experts' and local peoples' perception, on the provision and trends of coastal ecosystem services (ES), (2)* aiming to provide a socio-ecological baseline for the proposed trans-boundary conservation area (TBCA) between Kenya and Tanzania

### SPECIFIC

**1.** To identify general trends of coastal ecosystem services in a selection of Kenyan villages, using the TESSA-inspired Nominal Group Technique

# 3. Study area



Study sites in the southern coast of Kenya:

## Villages (Kwale county)

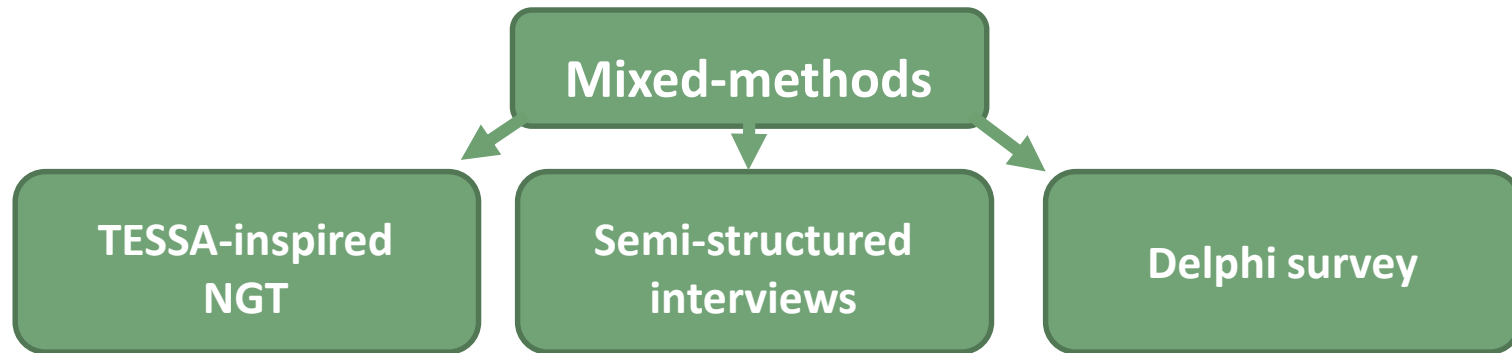
- Makongeni
- Gazi
- Kibuyuni
- Wasini Island
- Kinondo\*

## Urban centres

- Ukunda

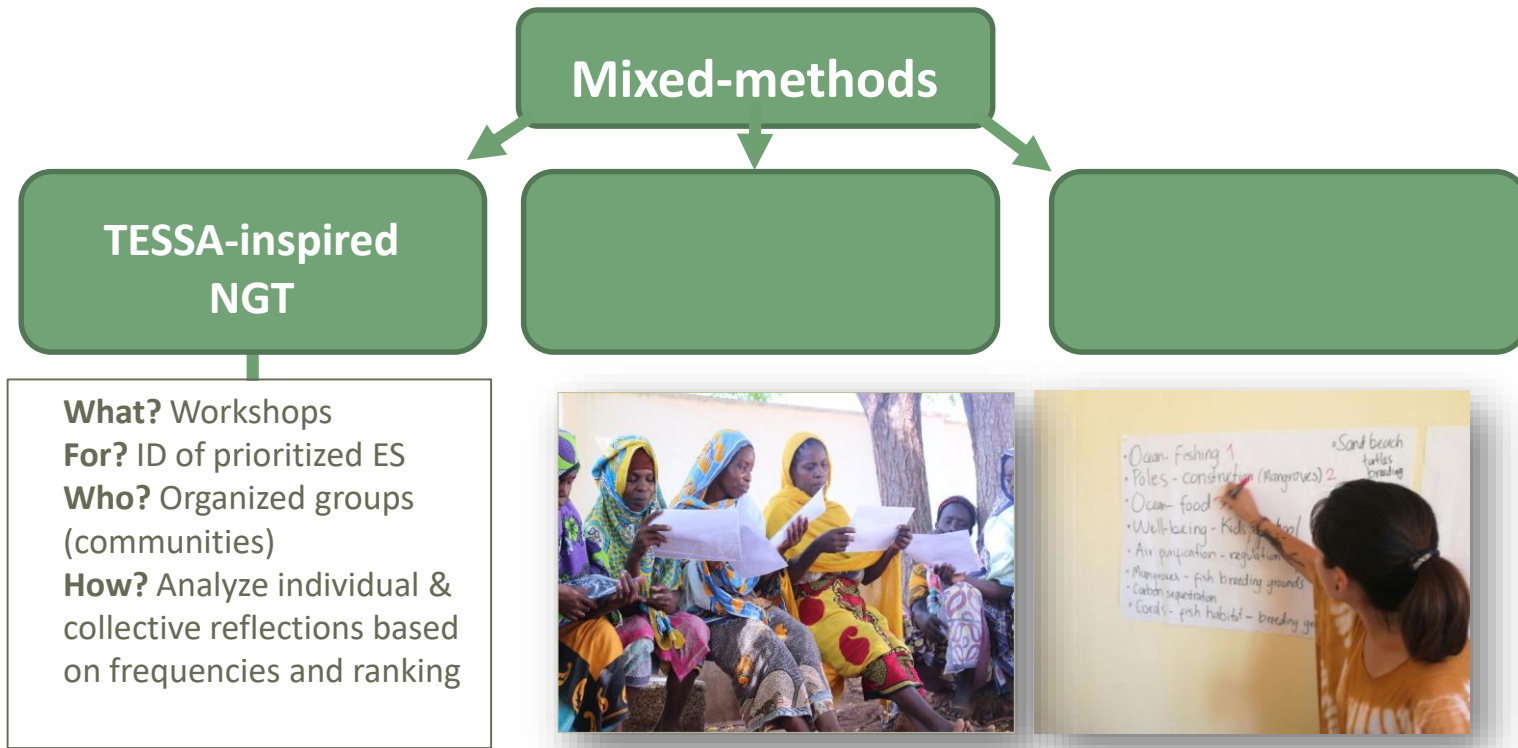
\*Kaya Kinondo – sacred forest adjacent to Kinondo village, place for workshop

# 4. Methodology



Although the project used three different methods, we only present the results of the TESSA-inspired NGT here today.

# 4. Methodology



**TESSA:** Toolkit for Ecosystem Service Site-based Assessment (Peh et al., 2013).

**NGT:** Nominal-Group Technique (Hugé & Mukherjee, 2017).

Social-ecological assessment of coastal ecosystem services and non-use values: transboundary perspective of a 'society in transition' in the south coast of Kenya

## 4. Methodology: NGT

- The Nominal Group Technique (NGT) is a structured group-based technique used to build consensus.
- Participants are asked to individually reflect and to generate ideas based on predetermined, structured questions asked by a facilitator.
- Subsequently, participants are asked to collectively prioritize the ideas and suggestions issued by the group members.
- The NGT is based on a combination of individual and collective reflection and eventually generates a list of prioritized actions and/or recommendations



# 4. Methodology: NGT

## **Sharing and recording ideas**

Facilitator directs participants to write down ideas silently and individually

Ideas are shared in a round robin feedback session (one response per person each time)

Ideas are recorded verbatim by the facilitator in real time

## **Group discussion**

Participants clarify and elaborate on the listed ideas

Facilitator ensures that all participants contribute to the discussion

Similar ideas are grouped based on open discussion

## **Voting and ranking**

### **-Variant 1**

Participants privately rate each idea (e.g. using a Likert scale)

Participants rank the ideas based on preference criteria

Results are compiled by the facilitator and shared with the group

### **-Variant 2**

Participants publicly vote and rank each of the ideas

Results are compiled by the facilitator and shared with the group

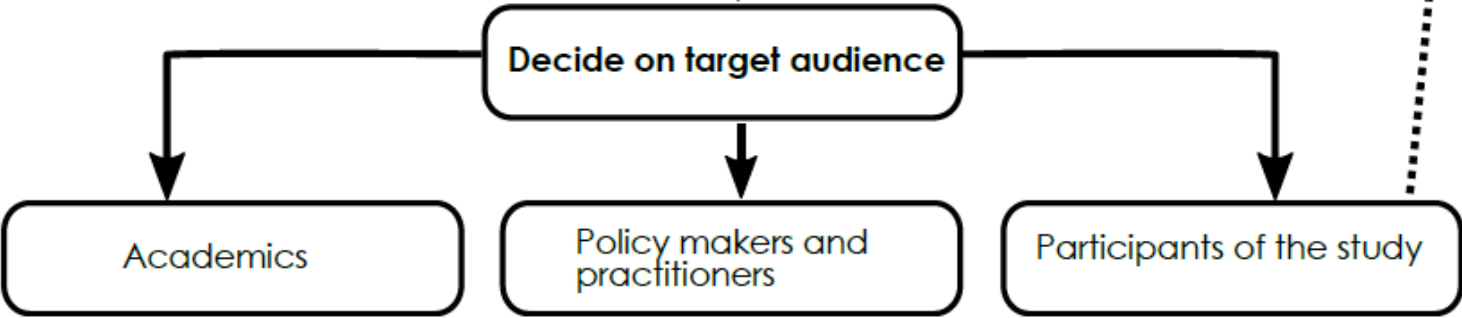
# 4. Methodology

Analysis

Options include

- List overview of the ideas of the group
- Include scores for every idea and relative weighting of each score
- Content analysis by qualitative coding

Results and reporting





Gazi Fishermen (Pilot)



Gazi Women Boardwalk



Baraka Conservation Group



Makongeni Women Group

*Workshops conducted with different stakeholders, using the TESSA-inspired NGT*



Makongeni Youth Group



Kinondo Ecotourism Group



Wasini Women Boardwalk



Kibuyuni Seaweed Group

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# 5. Findings: Prioritized ecosystem services in TESSA-inspired NGT workshops

List of ES mentioned in **ALL 7 workshops** – (65 participants)

ES Category	Ecosystem service	a. Overall score	b. Total no. of votes	c. Total no. of workshops mentioned
<b>Provisioning</b>	<b><i>Fisheries</i></b>	<b>178</b>	<b>48</b>	<b>7</b>
	Construction poles	73	24	7
	Firewood	41	14	5
	Medicinal value/traditions	37	13	4
	Habitats	24	11	4
	Aquaculture	18	10	5
	Food/Fish for sale	19	7	2
	Mangrove seedlings sale	10	5	3
Water household provision	8	4	2	
<b>Regulating</b>	<b><i>Carbon sequestration/trading</i></b>	<b>87</b>	<b>20</b>	<b>4</b>
	Reduced wave actions/strong waves	32	12	4
	Increased rainfall	24	9	4
	Fresh air/Oxygen	11	5	2
<b>Cultural</b>	<b><i>Ecotourism</i></b>	<b>99</b>	<b>31</b>	<b>7</b>
	Job creation	39	18	5
	Seaweed farming/agribusiness	39	11	3
	Education	27	8	2
	Shrines	15	4	2
Recreation	8	4	2	

Source: Kenya National Bureau of Statistics (KNBS) (2019) and Kenya National Bureau of Statistics (KNBS) (2019)

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**Trends?**

*Fisheries*



*Carbon sequestration/trading*



*Ecotourism*



5/1/2020

of Kenya



# 6. Discussion

Trends of prioritized ES

Fisheries

- **Transboundary fisheries** (e.g. *migrant fishermen, from Pemba island in TZ*), influxes increasing (Wayonyi et al. 2016)
- Reinforced regulations + punitive actions needed (Bosire et al. 2015; Tuda et al. 2016)
- Potential existing frameworks =
  - **WIOFish**: up-to-date database from each WIO State (Everett et al. 2017)
  - **SWIOFish (2008-2013)**: regional network fisheries management, government and community level (Groeneveld et al. 2013)

# 6. Discussion

## Trends of prioritized ES

Fisheries

Ecotourism

- Perceived as **promising** and **popular** livelihood
- Opportunities from ecotourism in Kenya – like Gazi or Wasini Island (Juma, 2013; Koki et al. 2017) and Zanzibar (Madeweya et al. 2018; Hugé et al. 2018).
- Political tension and instability: electoral violence (e.g. Oct 2017)
- Tourism-based economic growth, unpredictable

# 6. Discussion

Trends of prioritized ES

Fisheries

Ecotourism

Carbon sequestration

- **Increased** community awareness
- Context-dependent
- **Mikoko Pamoja's big positive impact**



Social-ecological assessment of coastal ecosystem services and non-use values: transboundary perspective of a 'society in transition' in the south coast of Kenya



# 7. Conclusions

- ***This was a '2018 snapshot' of a complex coastal 'society in transition'*** in southern Kenya
- ***Complexity patterns:***
  - Range of ***different views*** and knowledge sources
  - ***Livelihoods*** (fisheries), complex and somehow uncontrollable (tourism-based economy)
  - ***New ways of community well-being improvement***
  - ***Informal management*** of cultural heritage (spiritual values)
- ***'Snapshot': insights*** for social-ecological ***baseline*** (at scale of area covered) for the ***TBCA*** between ***Kenya*** and ***Tanzania***

# 7. Potentially, TESSA-inspired NGT can inform ES threat assessment frameworks

Category	Definition	Threshold
<b>Functionally extinct</b>	Service no longer supplied in the region and is practically unrecoverable	Lost
Dormant	Service no longer supplied in the region but is potentially recoverable	
<b>Critically endangered</b>	Current levels of demand exceed supply and the ratio of supply to demand declining or expected to decline	Undersupplied
<b>Endangered</b>	Current levels of demand exceed supply; ratio of supply to demand is stable but supply is declining	
Stable but undersupplied	Current levels of demand exceed supply; neither supply nor ratio of supply to demand declining	
<b>Vulnerable</b>	Ratio of supply to demand is declining or expected to decline such that supply is likely to be insufficient to meet demand within a set time horizon	At risk
<b>Least concern</b>	Supply currently meets or exceeds demand, and does not meet the criteria for Vulnerable	Secure
Data deficient	Inadequate information is available about either or both of supply and demand to assess the level of threat	n/a

## 8. Conclusion

- Applying the TESSA-inspired NGT proved workable and realistic in the field.
- This provided us with information regarding ES threats and trends, and regarding the impact of changes in management.
- Workshops with different stakeholder categories made prioritization & validation possible.
- This information can feed both formal and informal stakeholder-inclusive management at strategic and operational levels.
- In this case, it can also feed into the development of a trans-boundary conservation area between Kenya and Tanzania.

# Contact

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