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Beyond restoration: towards livelihood diversification for coral reef conservation and resilience in the Shimoni seascape, Kenya

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Background

- ❖ Tropical marine ecosystems are central to the sustainable blue economy, supporting coastal livelihoods through fisheries, tourism, and diverse marine enterprises.
- ❖ However, coral reef ecosystems are increasingly threatened at both global and local scales by anthropogenic and climate-related stressors, jeopardizing ecological integrity and the livelihoods of coastal communities.
- ❖ Along Kenya's south coast, coral reef restoration is emerging as a key nature-based solution for reef recovery, but lasting success requires inclusive and sustainable livelihood alternatives for local communities.

Objective

- ❖ Assess existing and potential (untapped) sustainable alternative livelihood opportunities, strategies to enhance their effectiveness and sustainability, and the timelines and challenges associated with their development as adaptive approaches to reduce pressure on coral reef resources, strengthen coastal community resilience, and advance the sustainable blue economy in the Shimoni seascape, southern Kenya.

Methodology

- ❖ Conducted 33 semi-structured interviews with key informants from diverse stakeholder groups, 2 focus group discussions, and participant observations in the Shimoni seascape (Fig.1). Data analysed using thematic analysis with descriptive coding as per interview protocol and aspects from the Sustainable Livelihood Framework.

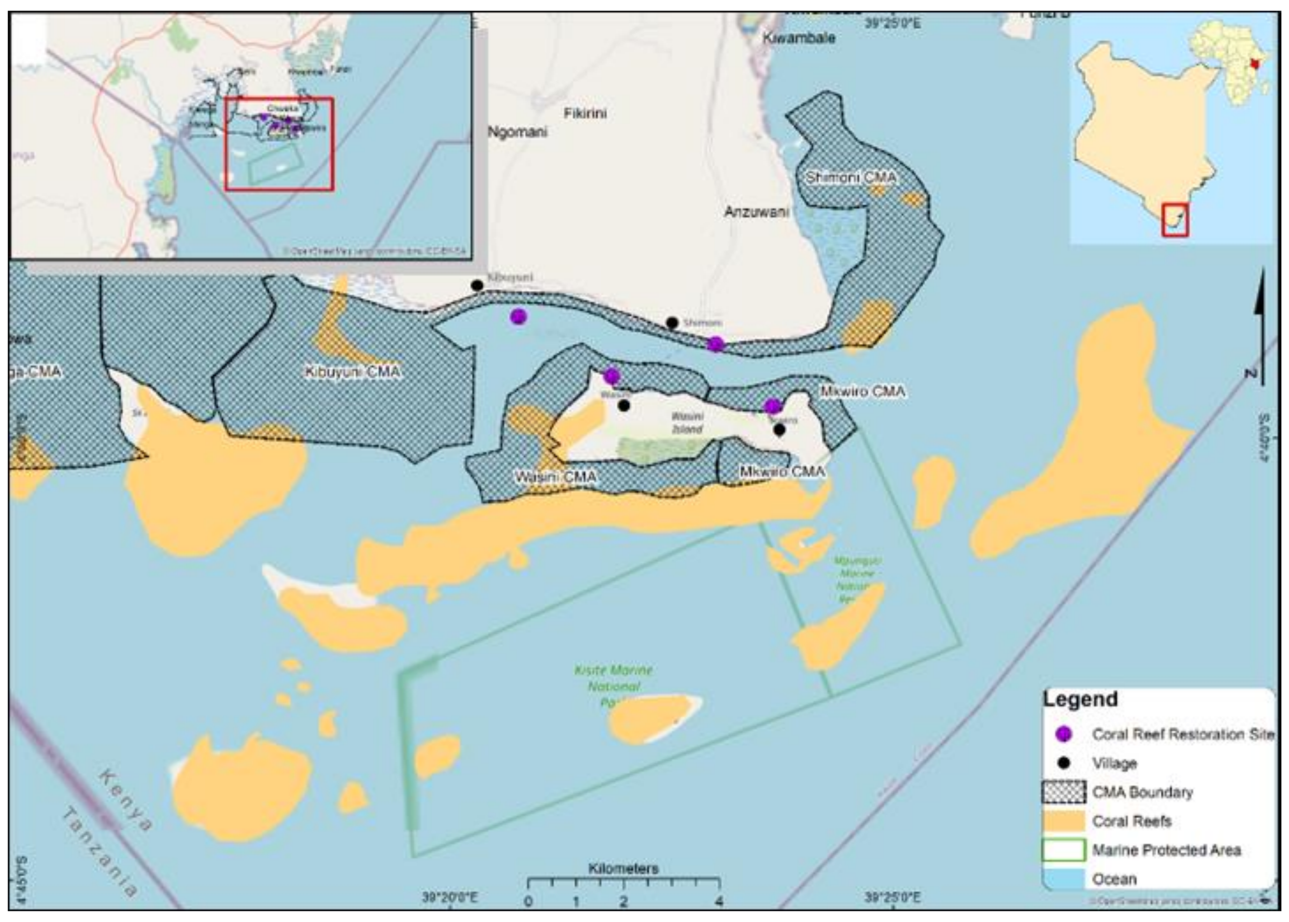

Fig 1 Geographical location of Shimoni-Wasini Island area, illustrating the study area including the fishing villages (i.e., Mkwiro, Wasini, Shimoni and Kibuyuni).

Results

A) Existing and perceived potential (untapped) livelihood opportunities (Fig. 2)

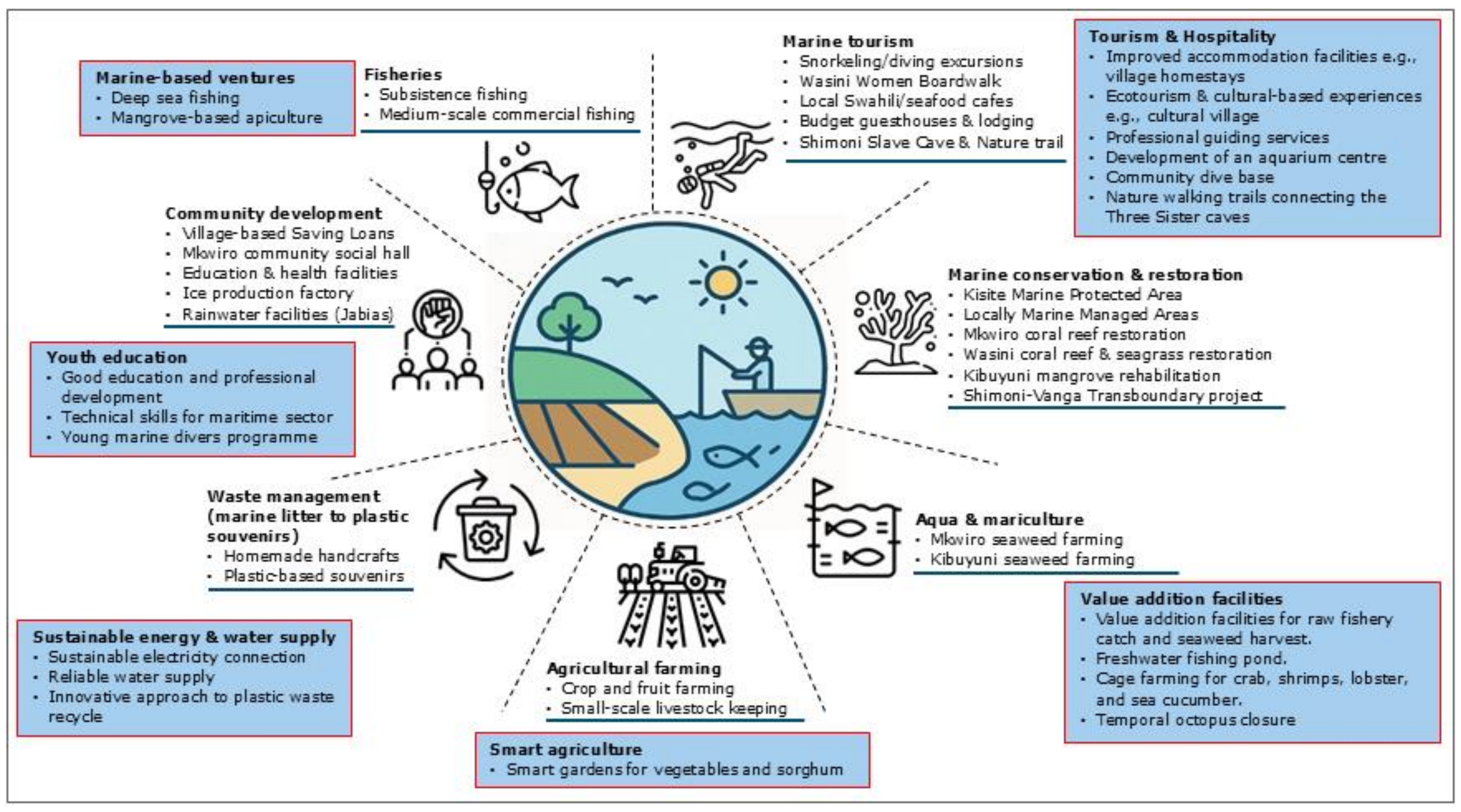

Fig 2 Categories of existing livelihood opportunities including specific activities, and perceived untapped livelihoods (marked in red rectangles) summarized into six overarching themes.

B) Strategies to supporting development of sustainable alternative livelihoods (Fig. 3)

"Through the Beach Management Unit (BMU) welfare and education sub-committee, experts should be invited to enlighten, educate, and train local people about livelihood opportunities and how to effectively develop them" ~ interview response by a BMU leader

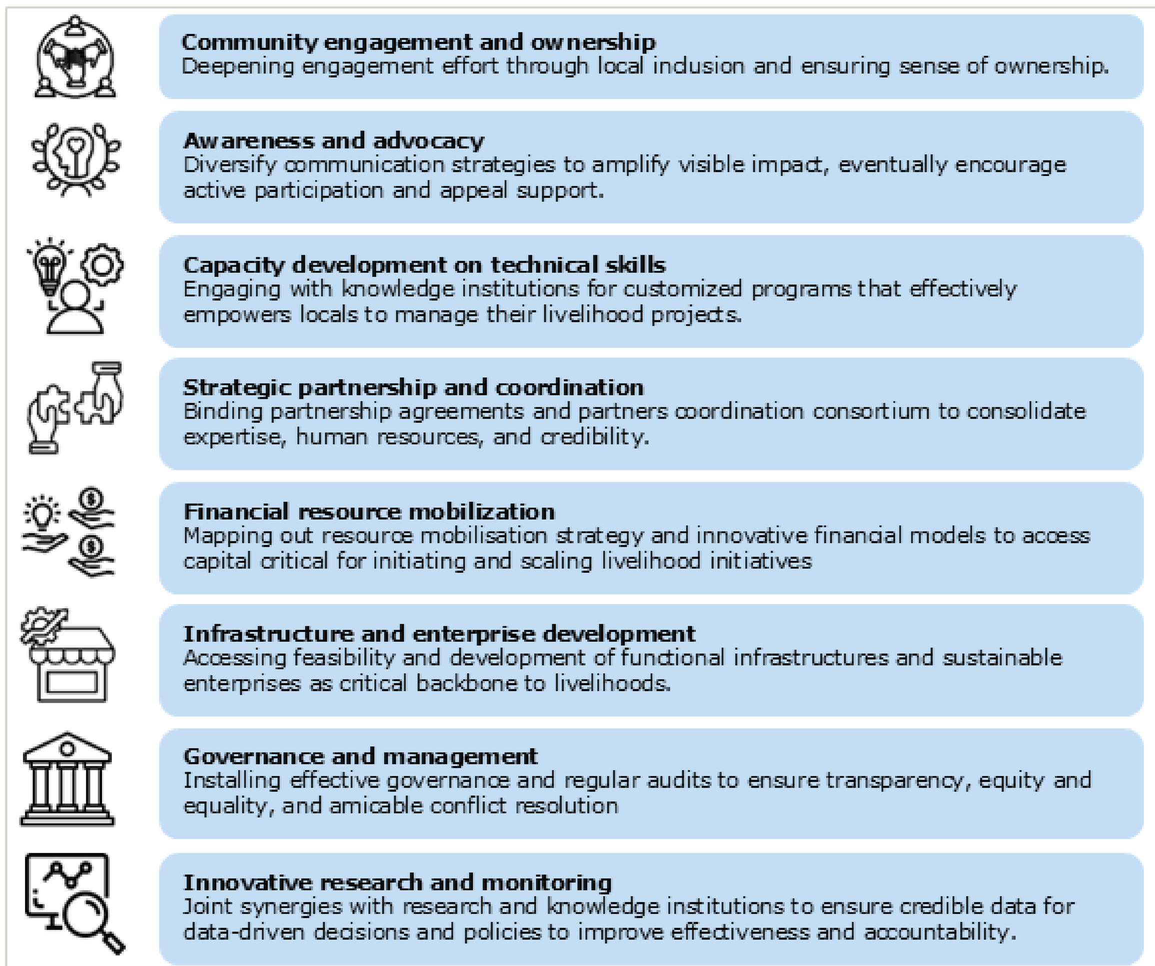

Fig 3 Strategies for enhancing and supporting development of existing and untapped livelihoods.

C) Timelines for development sustainable alternative livelihood opportunities (Fig. 4)

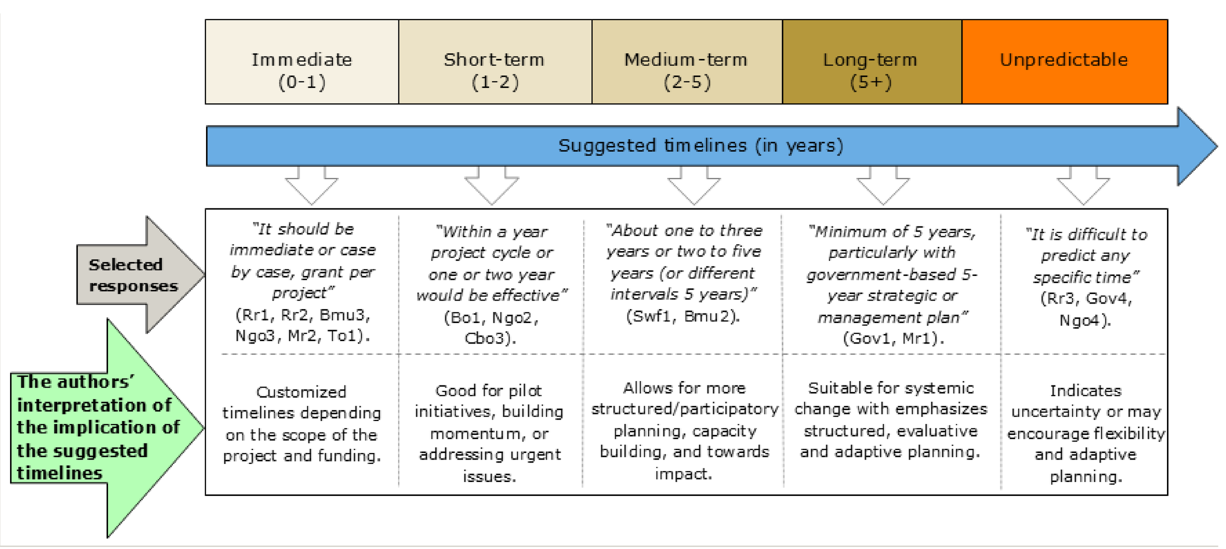

Fig 4 Suggested timelines for developing sustainable alternative livelihoods.

"Majority of potential livelihood opportunities are long overdue. We cannot wait anymore as there are many other issues arising in the community" ~ interview response by a local Reef ranger.

D) Possible challenges in development of sustainable alternative livelihoods (Table 1)

Table 1 Summary of challenges related to development of alternative livelihoods.

Thematic areas	Specific challenges
Community and social dynamics	• Gender inequality and cultural barriers • Low trust and limited community participation • Rising disputes among stakeholders
Institutional leadership and governance	• Restrictive legal and bureaucratic procedures • Poor financial transparency and lack of strategic planning • Weak and fragmented coordination among stakeholders
Technical capacity	• Lack of strategic leadership skills • Lack of fishing vessels/gears and skills for deep sea fishing
Financial and market access	• Insufficient financial resources coupled with high credit rates • Uncompetitive pricing for raw products
Environmental and external factors	• Recurring coral bleaching and • Lengthy development timelines • Pandemic impacts (e.g., COVID-19)

"Management capability of BMUs, financial transparency, and accountability remain low" ~ interview response by a senior fisheries officer

Discussion

- ❖ Coral reefs are vital to coastal livelihoods both within and beyond coastal communities.
- ❖ Stakeholders recognize diverse onshore and offshore livelihood opportunities.
- ❖ Coastal livelihoods reveal the diversity and complexity of coastal livelihood systems.
- ❖ Integrated, multi-sectoral strategies are essential for sustainable livelihood development.
- ❖ The Sustainable Livelihoods Framework provides a valuable tool for participatory planning.

Way forward

- ❖ Timely implementation of livelihood strategies, address existing challenges and establish equitable incentives is needed to support sustainable livelihoods and healthy, resilient coral reef ecosystems.

Reference Obura *et al.* (2022). Vulnerability to collapse of coral reef ecosystems in the Western Indian Ocean. *Nature Sustainability* **5**, 104-113. https://doi.org/10.1038/s41893-021-00817-0

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