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REPOA Brief

From Shores & Households to Markets: Dynamics of Seaweed Farming in Tanzania

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Key Messages

Seaweed Farming	•Seaweed farming highlights how non-traditional marine sectors can complement fisheries and tourism, expanding Tanzania's blue economy portfolio and creating opportunities for integrated coastal development.
Contribution to the Economy	•Tanzania produces 16,000 tonnes dry weight of seaweed annually, 90 percent from Zanzibar, leading in turn to generating significant export income and strengthening the country's reputation as a top-quality seaweed supplier.
Support to Coastal Livelihood	•Seaweed farming supports coastal livelihoods by providing income and employment for women, youth, and small-scale farmers, while enhancing access to education, household financial stability, and local development.
Key Constraints to Productivity Growth	•Infrastructure and Financial Constraints limit productivity growth, where many farmers face inadequate farming gear such as boats, mechanized tools, and limited access to affordable financing, especially for women and older producers.
Other Constraints	•Climate change, unpredictable global market prices, and weak governance undermine seaweed productivity and income growth.

Objective	➢ **To identify opportunities and challenges for expanding seaweed farming in Mainland Tanzania and Zanzibar, while strengthening sector resilience.**

Baseline Definitions – Blue Economy	
World Bank	Defines BE as a sustainable use of the ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem.
EU Commission	Defines BE as encompassing all economic activities related to oceans, seas and coasts.
Centre for the Blue Economy	Defines BE as the overall contribution of the oceans to economies, the need to address the environmental and ecological sustainability of the oceans, and the ocean economy as a growth opportunity for both developed and developing countries.
United Nations	Defines the BE as an economy comprising a range of economic sectors and related policies that together determine whether the use of ocean resources is sustainable.
Environmental Institutions	Consider the BE to include economic benefits that may not be marketed, such as carbon storage, coastal protection, cultural values and biodiversity.
East African Community	Considers BE as the sustainable use and conservation of aquatic resources in both marine and freshwater environments--includes oceans and seas, coastlines and banks, lakes, rivers and groundwater.

Significance of Seaweed production in Tanzania

Tanzania's Seaweed Sector	Seaweed farming is one of the fastest-growing sectors in Tanzania's blue economy, where it provides critical livelihoods for thousands of households, most of them women;
	The main species cultivated are *Eucheuma spinosum* and *Kappaphycus alvarezii* (Cottonii), which are exported for carrageenan extraction, widely used in food, cosmetics, and pharmaceuticals;
	Beyond its market value, seaweed also delivers ecological benefits, including absorbing carbon dioxide and nitrogen, reducing nutrient pollution, and contributing to climate change mitigation.

Tanzania is Africa's leader in seaweed production, contributing more than 90% of the continent's output (AUDA-NEPAD, 2024). The sector employs nearly 26,000 people, with women accounting for approximately 80 per cent of the workforce. In Zanzibar, seaweed is recognised as the second leading export commodity after cloves and the third-largest

contributor to foreign earnings following tourism and cloves. Total seaweed production in Zanzibar increased from 11,044 tons, valued at 4.1 billion TZS in 2013, to 16,724 tons worth 9.5 billion TZS in 2015, followed by a decline to 10,425 tons valued at 4.3 billion TZS in 2018 (Msafiri, 2021). Moreover, Zanzibar dried seaweed output rose from 11,830 tonnes in 2020 to over 16,000 tonnes in 2023, alongside a 43% increase in export prices. By contrast, Mainland Tanzania plays only a minor role, with little accessible data on production levels. Seaweed farming production in mainland Tanzania has grown from 553 tons in 2010 to 4,678 tons in 2022, particularly in Bagamoyo, Tanga, Kilwa, Mafia, and Pangani (National Environment Management Council 2024).

Methodology

This policy brief examines how seaweed farming supports local communities, particularly women, while outlining key challenges across the value chain from production to export, and underscores the potential of Tanzania to become more competitive in the global blue economy.

A qualitative approach was used to collect data from both regional and local government authorities (LGAs).

- At the regional level, interviews were conducted with officials responsible for Blue Economy initiatives.
- At the LGA level, consultations involved representatives from wards/Shehia, villages/streets, cooperatives, Beach Management Units (BMUs), farmer associations, and farmer groups.

The fieldwork carried out in June 2025 covered key seaweed farming areas:

a) Lindi Region (Lindi Municipal and Kilwa District); b) Tanga Region (Tanga City and Mkinga District),
c) Coast Region (Bagamoyo and Mafia Districts) on the Mainland,
d) as well as South Unguja (South District) and North Unguja (North A District) in Zanzibar.

Findings

Economic Significance of Seaweed for Coastal Communities—as per the details below.

Quality and Competitive Advantage in Seaweed Production

Tanzania cultivates high-value, nutrient-rich seaweed, particularly the variety known as "cottonii," which farmers describe as the best seaweed in the world.

This premium seaweed is in high demand in international markets for its use in value-added products, generating significant export revenue.

Its strong market appeal encourages improved farming practices and enhances Tanzania's reputation as a leading supplier of high-quality seaweed globally.

Income Diversification through Seaweed Cultivation

Seaweed provides regular, quick-turnover, and sustains the livelihoods of coastal communities, serving as an important source of income, particularly for small-scale producers.

Its economic significance extends beyond individual households, contributing to local development and offering substantial opportunities for income generation.

Gender Empowerment and Inclusion

Youths benefit from accessible roles in nursery production, farm maintenance, hauling, drying, and transport, providing diverse entry points into the industry.

Seaweed farming in Zanzibar has evolved into a significant economic activity that supports thousands of households, contributes to women's empowerment, and has the potential to expand further with targeted support, improved farming techniques, and enhanced market access.

About 8 out of every 10 seaweed farmers are women. This highlights the critical role that women play in sustaining and advancing the seaweed farming industry.

Group and cooperative formation benefits

Group and cooperative formation have transformed seaweed farming from a vulnerable, individual livelihood into a more secure, organised, and empowering collective enterprise.

Farmer groups and cooperatives not only boost income but also enhance resilience, promote innovation, and link farmers to broader markets and policy support.

Forming a group provides numerous advantages, one key benefit is mutual support: "*Our group sells seaweed to a purchasing agent; this collective marketing strategy in the future will help us*

	enhance our bargaining power, improve income stability, and ensure better access to buyers compared to selling individually."

Barriers to Growth and Sustainability in Seaweed Farming

Key Productivity Challenges and Constraints facing the Seaweed sub-sector	
a. Underlying constraints	Seaweed farming in Tanzania is constrained by inadequate infrastructure, limited financing, climate change impacts, global market volatility, fishing activity interference, and weak governance, all of which reduce productivity and undermine sustainable growth.
b. Infrastructure Gaps and Operational Challenges	Despite the growing importance of seaweed farming in the country, inadequate infrastructure for accessing deeper sea farming remains a significant challenge that limit productivity and efficiency;
	As one farmer explained, *"We lack a fibber boat for weeding and harvesting… rope-based farming is unreliable due to weather changes and strong winds."*
	Many coastal communities rely on manual labour and traditional methods, which are time-consuming and vulnerable to environmental factors.
	The absence of specialised equipment, such as durable boats, mechanised harvesters, and protective farming materials, reduces yields and increases the risk of crop loss.
c. Limited Financial Opportunities for Small-Scale Producers	Access to financial resources remains a major challenge for seaweed farmers, particularly for small-scale producers and women-led groups.
	Seaweed farmers in Tanzania face difficulty accessing credit due to strict loan conditions, high interest rates, limited eligibility, unmet infrastructure needs, and reliance on NGOs instead of financial institutions;
	"The government has been assisting fishers, fish farmers, and seaweed farmers through the allocation of 10% of internal revenue, subject to meeting certain criteria. Although the funds are limited and the demand is high…".
	This lack of affordable financing constrains the growth of the sector, reduces productivity, and hampers farmers' capacity to expand into regional and international markets.
d. Climate Risks and Climate Change Impacts	Seaweed farming faces growing pressure from climate change. Excessive rainfall and freshwater runoff lower salinity, stunting the growth of *Eucheuma cottonii* and causing widespread die-offs.
	Rising sea surface temperatures intensify stress, leading to bleaching and the decline of Cottonii, forcing farmers to shift to the more heat-tolerant but less profitable - *Spinosum*.
	"Rising sea surface temperatures have been linked to declining seaweed productivity, erratic weather patterns disrupt the delicate marine ecosystems."
	These stresses fuel disease outbreaks, especially *ice-ice syndrome*, which often wipes out entire farms and undermines household incomes.
	The problem is worsened by limited farmer capacity, as most lack technical knowledge and adaptive systems to manage salinity, disease, or deeper-water farming.
e. Global Market Volatility & Limited Market Access	Seaweed farming in Tanzania is highly vulnerable to global market fluctuations and limited domestic market access, which together undermine the sector's profitability and long-term sustainability.
	Global market volatility occurs because producers are small-scale players in a market dominated by larger exporters, and having00000 low value addition.
	"When Indonesian production is high, global buyers reduce purchases from smaller producers such as Zanzibar, leading to falling prices." This dependency on international demand exposes farmers to unpredictable income and reduces incentives to maintain or expand production.
	Simultaneously, domestic market constraints compound these challenges. Farmers face limited buyers and value chain bottlenecks, restricting their ability to earn fair prices. One group explained, *"A kilo of dried seaweed is sold at TZS 700, while 3 kg of seaweed powder can be sold at TZS 40,000–50,000… we still struggle with the market.".*
f. Illegal Fishing Practices and Weak Governance	Seaweed farmers in Tanzania face significant threats from illegal fishing practices, which directly damage their crops and undermine livelihoods.
	Farmers report, *"Illegal fishers using beach seines (Kokoro) damage our ropes."* Such practices disrupt marine ecosystems that are essential for sustainable seaweed cultivation.
	Challenges are compounded by weak governance and limited monitoring. Farmers note, *"Poor follow-up on plans. We submitted a proposal requesting support… but there was no response,"* reflecting gaps in institutional support and accountability.

Conclusion and Policy Recommendations

Seaweed has played a vital role in human societies for thousands of years, serving as a source of food, medicine, animal feed, fertilizer, and an industrial resource. In Tanzania, its cultivation, particularly of high-value varieties, provides substantial economic, social, and development opportunities, supporting coastal livelihoods, empowering women, and generating export revenue. Challenges faced include inadequate infrastructure and reliance on manual methods, which reduce efficiency and yields, while limited access to finance constrains growth and expansion. Climate change impacts,

including rising sea temperatures, erratic rainfall, and disease outbreaks, threaten productivity. Global market volatility and limited domestic market access create unstable incomes, and fishing practices, coupled with weak governance, undermine farm security and sustainability.

Key recommended actions to address the above challenges	
Strengthen infrastructure for modern seaweed farming	The responsible ministries and private investors, invest in modern farming equipment such as durable fiber boats and improved ropes to support farmers in accessing deeper waters and coping with harsh weather. This can be achieved through targeted subsidies, innovation grants, and PPPs that ensure farming is less vulnerable to environmental risks and more productive.
Expand financing and credit access to small-scale farmers	The government, in partnership with financial institutions and NGOs, design accessible loan schemes tailored to seaweed farmers, especially women and youth groups. Lowering collateral requirements, offering flexible repayment schedules, and using cooperatives as guarantors.
Build climate resilience and adaptive farming capacity	Research institutions, supported by the responsible ministries and NGOs, to train farmers on adaptive techniques to manage salinity, diseases, and shift to deeper-water farming. Introducing heat-tolerant seaweed varieties while equipping farmers with climate information.
Promote value addition and secure market access	The private sector, supported by cooperatives and government agencies, invest in local processing industries for products such as seaweed powder, cosmetics, and bio-fertilisers. Promoting cooperative marketing and linking farmers to regional and global buyers helps reduce market volatility and increase harvest value.
Strengthen governance and protect seaweed farms	LGAs, in collaboration with BMUs, enhance enforcement against fishing practices that damage seaweed farms. Community-based monitoring, stricter penalties for offenders, and transparent follow-up on farmer proposals to ensure accountability and institutional responsiveness in managing marine resources.

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