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Understanding IMTA Systems in the Context of the Blue Empowerment Project: The Case of Aquaculture of Fish and Seaweed in Kwale and Kilifi Counties

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Introduction

The Blue Empowerment Project's focus on the aquaculture of fish and seaweed within an Integrated Multi-Trophic Aquaculture (IMTA) system represents a significant step towards sustainable and environment friendly aquaculture practices. IMTA systems, by design, promote the co-culture of species from different trophic levels, allowing for the recycling of nutrients and minimizing waste through the natural processes of biofiltration and nutrient uptake.

Specifically, in the context of the Blue Empowerment Project, the waste produced by fish provides a valuable nutrient source for seaweed, which in turn contributes to water purification and the overall health of the ecosystem. This symbiotic relationship not only enhances the efficiency and sustainability of aquaculture operations but also aligns with global efforts to address environmental concerns associted with traditional aquaculture practices.

By integrating the cultivation of fish and seaweed, the Blue Empowerment Project leverages the ecological and economic benefits of IMTA, showcasing a model that could be replicated and adapted worldwide to meet the growing demands for seafood while ensuring environmental sustainability. This brief explores the principles of IMTA, focusing on the aquaculture of fish and seaweed as part of the Blue Empowerment Project, and explores the application of IMTA systems from a global perspective down to local technology implementations.

Key facts and emerging issues

As part of the project pre-launch training, key issues emerged as outlined below:

- The objective of IMTA is to maximise the efficiency of resource allocation, minimise ecological footprint and improve the long-term viability of aquaculture activities.
- IMTA systems involve cultivation of various species exhibiting mutually beneficial ecological interactions. These species encompass fish, shellfish, and seaweeds.
- Cultivating different species in close proximity establishes a mutually beneficial relationship, emulating natural ecosystems and enhancing overall system efficiency.
- Environmental, socioeconomic, and technological issues and variables are limiting individuals and communities from accessing and ownership of IMTA Farms.
- Women and youth were eager to be involved with the IMTA technology calling for support to access the technology.
- Major challenges with the access included; inadequate boats, poor swimming skills, acquisition of swimming tools, and removal of the ocean no entry barrier for women.
- The project needs to establish farms with smaller business units, create SACCOs or table banking to increase access to finances for setting up farms, establishing businesses and marketing plans, and ensuring inclusive and equitable IMTA practices.
- Sensitisation on inclusion, incentives, and equitable role allocation is key to bridging in bridging the disparity gap with regards to age, disability, and gender.

BE Project partners during the lauch of IMTA which aims to maximise the efficiency of resource allocation, minimise ecological footprint and improve the long-term viability of aquaculture activities.

Key lessons emerging from Implementation of IMTA

Integration of gender considerations in the IMTA Blue Empowerment project is critical

The Blue Empowerment project has integrated gender considerations into the IMTA technology, ensuring the sustainability and inclusivity of aquaculture initiatives. Gender inclusivity in aquaculture projects like IMTA is not just a matter of social justice but also a practical approach to enhancing project outcomes and sustainability. Women and men often have different roles, knowledge, and skills in fisheries and aquaculture, which can be leveraged to improve project design, implementation, and management For instance, women are traditionally involved in the processing and marketing segments of aquaculture in many societies, while men are more involved in the cultivation and harvesting aspects. By recognizing and integrating these gender-specific skills and roles into the Blue Empowerment project, the project has been able to enhance efficiency, productivity, and social equity. This approach ensures that the benefits of the IMTA system, such as economic diversification, environmental sustainability, and social well-being, are accessible and equitable across different genders, thereby contributing to the overall resilience and success of the project.

Women's empowerment in the IMTA sector

Women in the IMTA sector, as part of the Blue Empowerment Project, have been achieved through targeted strategies aimed at enhancing their participation, decision-making power, and access to resources. Capacity-building and training programs tailored to women play a crucial role in their empowerment. These programs not only focus on aquaculture techniques and ecosystem management but also leadership, business management, and financial literacy to enable women to take on more significant roles within the sector. Such educational initiatives equip women with the necessary skills to participate fully in the IMTA process, from cultivation to marketing. Moreover, forming women-led cooperatives or support groups provides a platform for sharing knowledge, resources, and best practices, fostering an environment of mutual support and collaboration. By ensuring women have equal access to training, resources, and support networks, the Blue Empowerment Project enhances their agency, improves their livelihoods, and contributes to the project's overall success and sustainability. Secondly, policy and institutional support are crucial for the empowerment of women in the IMTA sector. This includes revising existing policies or enacting new ones to ensure women's rights and access to land, water bodies, financial services, and markets. Implementing gender-sensitive policies that recognize and accommodate the specific needs and contributions of women in aquaculture can create a more inclusive and equitable working environment. Additionally, involving women in policy-making processes and decision-making bodies related to aquaculture and environmental management can ensure that their perspectives and needs are considered in the planning and implementation stages of projects like the Blue Empowerment Project.

Implications of the findings

Access and empowerment are crucial for sustainable IMTA

The need for "purchase of boats" and "training on skills like swimming" underlines the essential requirements for individuals, especially women and youth, to actively participate in IMTA. This emphasis on access and empowerment is crucial for sustainable aquaculture practices.

Environmental and socio-economic barriers to IMTA adoption

Factors such as "Difficulty in sourcing fingerlings" and "Inadequate finances to Set up farms" indicate significant socio-economic and environmental barriers that hinder the adoption and expansion of IMTA farms. These challenges necessitate targeted interventions to alleviate entry barriers and support sustainable practices.

The role of women in enhancing IMTA sustainability and efficiency

The statement that "women have been making significant strides in the blue economy" and their increasing involvement in "the sustainable cultivation of fish and seaweed" highlights the critical role of women in driving the success and sustainability of IMTA projects. This underscores the need for strategies that support women's participation and leadership in aquaculture.

The importance of supportive policies and community structures

Recommendations for "policy advocacy" and the "provision of equipment" point to the necessity of supportive policies, community structures, and external support to overcome the challenges faced by IMTA practitioners. Such support is essential to create an enabling environment for sustainable and equitable IMTA practices.

The need for comprehensive training and capacity building

The emphasis on capacity building for equity in IMTA and seaweed farming (training) reflects the importance of comprehensive training programs. These programs are crucial for equipping individuals with the knowledge and skills needed to navigate the complexities of IMTA systems and to promote inclusive and sustainable aquaculture practices.

Conclusion

Although the training was successful, addressing the challenges of implementing Integrated Multi-Trophic Aquaculture (IMTA) systems with a focus on empowering women is paramount for the success and sustainability of projects like the Blue Empowerment Project. Overcoming societal gender norms, enhancing women's access to resources, and ensuring their active participation and recognition in the aquaculture sector are critical steps towards achieving gender equity and sustainability.

Further readings

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Author information

This series of briefs summarizes findings of a project entitled "Aquaculture Of Seaweeds And Fish: Opportunities For Blue Economic Empowerment And Covid-19 Resilience Of Fisher Women In Kenya" undertaken by researchers and practitioners from the African Centre for Technology Studies (ACTS), Kenya Industrial Research And Development Institute (KIRDI), Bahari CBO Network, Kenya Marine and Fisheries Research Institute (KMFRI), Kenyatta University (KU), and Sea Moss Corporation.

The overall aim of the project is to contribute to the tackling of barriers to the empowerment of fisherwomen in Kenya's coastal region through the adoption of climate-smart integrated multi-trophic aquaculture (IMTA) of seaweeds and fish for im- improved livelihoods and resilience. K'osambo Linus M.D.O. is a Co-PI of the project and Work Package 4 lead. E-mail: linus.kosambo@kirdi.go.ke; Obondo Josephine, Elsie Wanjiku, Samwel Juma are project officers with C-Moss Limited E-mail: obondojosephine@gmail.com, elsiewanjiku45@gmail.com, samjuma218@gmail.com. Gillian Faith Achieng and Benard Simiyu are part of the technical writing team with the ACTS. Email: gachieng@acts-net.org, bsimiyu@acts-net.org.