The sub Saharan Journal of Social Sciences and Humanities (SJSSH)
ISSN: 2619-8894 (Online), 2619- 8851 (Print)

From Policy Ambition to Practice: Implementation Challenges of Zanzibar's Blue Economy Policy and the Sustainability of Artisanal Fisheries

[1]Hamadi S. Mrisho and Ajali M. Nguyahambi [2]

[1]Department of Political Science and Public Administration, The University of Dodoma, Dodoma, Tanzania. Email: hamadisimaimrisho@gmail.com
[2]Department of Political Science and Public Administration, The University of Dodoma, Dodoma, Tanzania. Email: ajali.mustafa@udom.ac.tz

Received: August 14, 2025; **Accepted:** December 11, 2025; **Published:** January 07, 2026

Abstract: *This study critically examines the implementation of Zanzibar's Blue Economy Policy (BEP) and its implications for the sustainability of artisanal fisheries, a sector central to livelihoods, food security, and coastal development in Small Island Developing States. Guided by a synthesis approach to public policy implementation, the study adopts a mixed-methods design combining household surveys (n = 122), key informant interviews, focus group discussions, and field observations across four coastal Shehia in the Urban West Region of Unguja. Quantitative data were analysed using descriptive statistics in SPSS, while qualitative data were subjected to thematic analysis. The findings reveal strong policy commitment by the Revolutionary Government of Zanzibar towards sustainable marine resource use and livelihood enhancement. However, significant implementation gaps persist, undermining the sustainability of artisanal fisheries. Key challenges include limited access to deep-sea fishing (reported by 91.8% of respondents), inadequate capital and financial support, insufficient modern fishing technologies, weak institutional training frameworks, poor fisheries infrastructure, and constrained export capacity. These challenges highlight a disconnect between policy aspirations and on-the-ground realities, reflecting broader governance and capacity constraints typical of blue economy transitions in developing coastal contexts. The study argues that without addressing these structural and institutional bottlenecks, the Blue Economy Policy risks reinforcing existing vulnerabilities rather than delivering inclusive and sustainable outcomes. It recommends strengthening policy coordination, expanding financial and technological support for artisanal fishers, enhancing capacity-building programmes, and fostering multi-actor partnerships to translate blue economy ambitions into tangible sustainability gains. The findings contribute to emerging debates on blue economy governance by offering empirically grounded insights into policy implementation challenges in island and coastal economies of the Global South.*

Keywords: *Blue Economy Policy; Artisanal Fisheries; Policy Implementation; Coastal Livelihoods; Sustainability Governance*

1. Background Information

The blue economy has gained global prominence as a development paradigm that seeks to reconcile economic growth with environmental sustainability and social inclusion in ocean and coastal spaces. Broadly defined, the blue economy encompasses economic activities linked to oceans, seas, and coastal zones that are pursued in ways that maintain ecosystem integrity while enhancing human well-being (UNECA, 2016; World Bank, 2016). As pressures on marine ecosystems intensify due to overexploitation, climate change, and governance failures, the blue economy has increasingly been framed as a strategic pathway for sustainable development, particularly in coastal and island economies of the Global South (UNCTAD, 2019; Queirós *et al.*, 2024).

Fisheries constitute a central pillar of the blue economy, contributing significantly to global food security, employment, and income generation. Fish provides more than 15% of the animal protein intake for over 4.2 billion people worldwide, with developing countries accounting for the majority of consumption and employment in the sector (FAO, 2016). Within this sector, artisanal or small-scale fisheries play a particularly critical role. Characterised by low levels of mechanisation, labour-intensive practices, and strong links to local economies, artisanal fisheries support the livelihoods of more than 120 million people globally, either directly or indirectly (FAO, 2020). Approximately 90% of artisanal fishers are located in Asia and Sub-Saharan Africa, where fisheries often function as a social safety net in contexts of limited alternative employment opportunities (Chuenpagdee & Jentoft, 2019).

Despite their socio-economic importance, artisanal fisheries remain structurally vulnerable. Fishers often operate under conditions of poverty, limited access to capital, inadequate technology, weak institutional support, and high exposure to environmental and climatic shocks (FAO, 2017; Jentoft *et al.*, 2022). A growing body of literature highlights a persistent disconnect between fisheries policy rhetoric and the lived realities of artisanal fishers. While policies frequently acknowledge the importance of small-scale fisheries, their implementation often prioritises industrial interests, conservation targets, or revenue generation at the expense of local livelihoods and equity (Linke *et al.*, 2022; Chuenpagdee *et al.*, 2020). These challenges raise fundamental governance questions regarding how blue economy policies are translated into practice and whose interests they ultimately serve.

In response to these governance and sustainability challenges, the blue economy has been promoted as a transformative framework capable of integrating economic development, environmental protection, and social inclusion. This policy momentum is reinforced by global commitments such as the United Nations Sustainable Development Goals (SDGs), particularly SDG 14, which calls for the conservation and sustainable use of oceans, seas, and marine resources while explicitly recognising the rights and needs of small-scale artisanal fishers (United Nations, 2015; FAO, 2022). For Small Island Developing States (SIDS) and coastal African countries, the blue economy is increasingly positioned as a vehicle for poverty reduction, employment creation, and climate-resilient development (UNCTAD, 2019).

Tanzania exemplifies this policy shift. The country's marine fisheries sector directly employs approximately 200,000 fishers and supports an estimated 4.5 million people through related value-chain activities, including processing, trading, and transport (Ministry of Livestock and Fisheries [MLF], 2021). Zanzibar, a semi-autonomous archipelago within the United Republic of Tanzania, is particularly dependent on marine and coastal resources. Nearly 98% of Zanzibar's international trade by volume is transported by sea, and blue economy activities contribute approximately 29% of the island's Gross Domestic Product while employing nearly one-third of the population (Revolutionary Government of Zanzibar [RGoZ], 2020). Artisanal fisheries are therefore not only an economic sector but also a foundation of food security, cultural identity, and social stability.

Recognising this strategic importance, the Revolutionary Government of Zanzibar introduced the Blue Economy Policy (BEP) in 2020 as a comprehensive framework to guide the sustainable and inclusive use of marine resources. The policy prioritises five interrelated areas: fisheries and aquaculture, maritime trade and infrastructure, energy, tourism, and marine governance (RGoZ, 2020). The BEP is aligned with Zanzibar Vision 2050, the African Union's Agenda 2063, and international legal frameworks such as the United Nations Convention on the Law of the Sea (UNCLOS). Within this framework, artisanal fisheries are explicitly identified as a key sector for livelihood enhancement, poverty reduction, and sustainable resource management through interventions such as deep-sea fishing expansion, technological upgrading, skills development, and value-chain investment.

However, despite the ambitious scope of the Blue Economy Policy, Zanzibar's artisanal fisheries continue to face persistent structural, institutional, and governance challenges. These include limited access to deep-sea fishing opportunities, inadequate financial capital, insufficient modern fishing technologies, weak training and extension services, poor fisheries infrastructure, environmental degradation, and limited access to high-value markets (BEP, 2020; Mfamau, 2019). Such challenges suggest that the central issue is not policy formulation but rather the effectiveness of policy implementation. As implementation scholars argue, policy outcomes are shaped by complex interactions among institutions, actors, resources, and local contexts, often producing outcomes that diverge from original policy intentions (Mazmanian & Sabatier, 1983; Van Meter & Van Horn, 1975).

Empirical studies on artisanal fisheries in Zanzibar and Tanzania have largely focused on production constraints, livelihood contributions, or environmental pressures (e.g., Juma, 2014; Subira, 2023). However, there remains a significant gap in systematically examining how the Blue Economy Policy is being implemented at the local level and how this implementation influences the sustainability of artisanal fisheries, particularly in urban and peri-urban coastal contexts such as the Urban West Region of Unguja. This gap is critical, as ineffective implementation risks reproducing existing inequalities and undermining the transformative potential of the blue economy.

Against this background, this study assesses the implementation of Zanzibar's Blue Economy Policy and its implications for the sustainability of artisanal fisheries in the Urban West Region of Unguja. By adopting a synthesis approach to public policy implementation and employing a mixed-methods research design, the study generates empirically grounded insights into the institutional, financial, technological, and governance dynamics shaping policy outcomes. In doing so, it contributes to broader debates on blue economy governance and offers policy-relevant evidence on the conditions required to translate blue economy ambitions into inclusive and sustainable development outcomes in coastal and island economies of the Global South.

2. Theoretical Framework

This study is anchored in an integrative theoretical framework (Figure 1) drawing primarily on Public Policy Implementation Theory and the Sustainable Livelihoods Framework (SLF). The combined application of these approaches provides a robust analytical lens for examining how Zanzibar's Blue Economy Policy (BEP) is translated into practice and how this process shapes the sustainability of artisanal fisheries. Together, these frameworks enable an assessment of both the institutional and governance dynamics of policy implementation and the livelihood-level outcomes experienced by artisanal fishing communities.

2.1 Public Policy Implementation Theory

Public Policy Implementation Theory offers a foundational framework for understanding why well-designed policies often fail to achieve their intended outcomes once translated into practice. Classical implementation scholars argue that policy success depends not only on policy formulation but also on how objectives are interpreted, resourced, coordinated, and enforced across multiple institutional levels (Pressman & Wildavsky, 1973; Van Meter & Van Horn, 1975). Implementation is therefore conceptualised as a complex, non-linear process shaped by interactions among policy actors, institutional arrangements, political interests, resource availability, and socio-economic contexts.

Van Meter and Van Horn's (1975) model identifies six interrelated variables influencing policy implementation outcomes: (i) policy standards and objectives, (ii) resources, (iii) inter-organisational communication and enforcement activities, (iv) characteristics of implementing agencies, (v) dispositions of implementers, and (vi) the socio-economic and political environment. These variables are particularly relevant to the implementation of blue economy policies, which typically involve multiple sectors, ministries, and stakeholders operating across different governance scales.

Mazmanian and Sabatier (1983) further emphasise that implementation effectiveness depends on the extent to which policy objectives are clear and consistent, supported by adequate legal authority, and embedded within favourable socio-economic conditions. In the context of fisheries governance, these conditions are rarely met in full, especially in developing countries where institutional capacity constraints, resource limitations, and competing development priorities are prevalent (Bennett *et al.*, 2019). As a result, implementation gaps often emerge between policy ambition and practical outcomes.

In relation to Zanzibar's Blue Economy Policy, Public Policy Implementation Theory provides a critical lens for analysing how institutional coordination, financial and technological resources, training systems, and governance structures influence policy execution at the local level. The theory is particularly useful in explaining why artisanal fisheries continue to face persistent challenges—such as limited access to deep-sea fishing, inadequate infrastructure, and weak extension services, despite strong policy commitment at the national level. By foregrounding implementation dynamics, the theory shifts analytical focus from policy intent to policy performance.

2.2 Sustainable Livelihoods Framework (SLF)

While implementation theory explains how policies are enacted, it does not sufficiently capture how policy outcomes are experienced by affected communities. To address this limitation, the study incorporates the Sustainable Livelihoods Framework (SLF) as a complementary analytical approach. Originally developed by Chambers and Conway (1992) and later refined by the UK Department for International Development (DFID, 1999), the SLF provides a people-centred framework for understanding how individuals and households construct livelihoods under conditions of vulnerability.

The SLF conceptualises livelihoods as being shaped by access to five types of capital assets: human capital (skills, knowledge, health), natural capital (marine and coastal resources), physical capital (boats, gear, infrastructure), financial capital (income, credit, savings), and social capital (networks, institutions, collective action). These assets are mediated by institutional structures and processes, including policies, laws, and governance arrangements, which influence livelihood strategies and outcomes.

In the context of artisanal fisheries, the SLF is particularly relevant because fishing livelihoods are inherently dependent on natural resources and highly sensitive to environmental, economic, and institutional shocks (Allison & Ellis, 2001; Bene *et al.*, 2016). Blue economy policies directly affect fishers' access to capital assets through interventions such as technology upgrading, skills development, infrastructure investment, and market integration. However, when such interventions are poorly implemented, they may exacerbate vulnerability rather than enhance resilience.

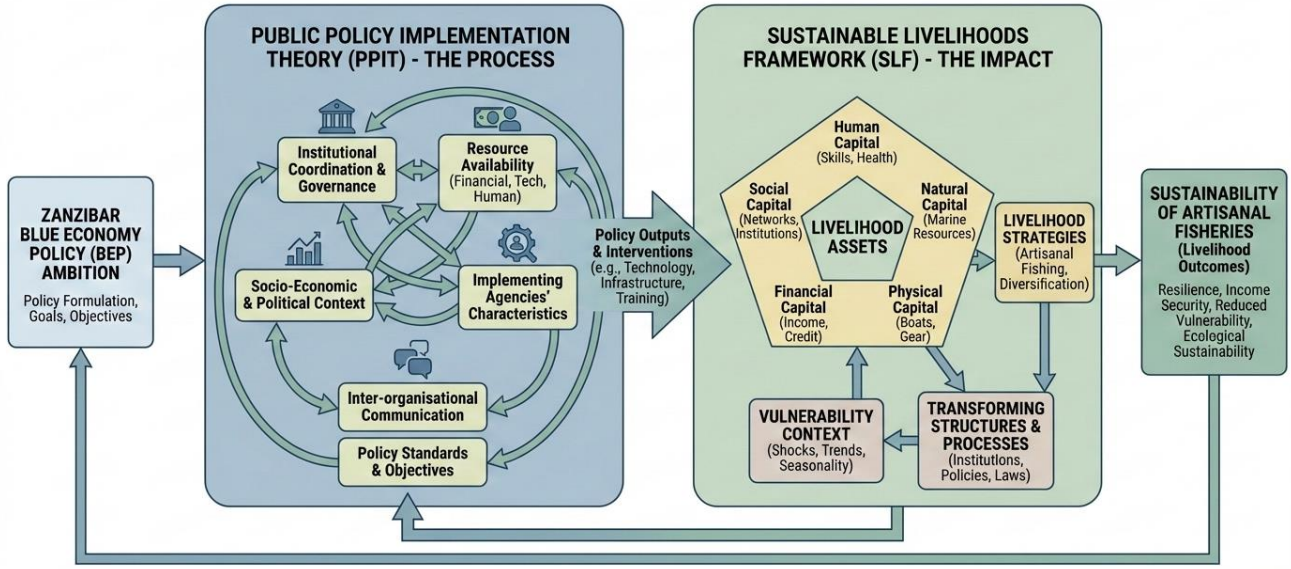
Applying the SLF enables this study to assess how the implementation of Zanzibar's Blue Economy Policy influences the sustainability of artisanal fisheries by shaping fishers' access to livelihood assets and their capacity to pursue adaptive strategies. Sustainability, in this sense, extends beyond ecological outcomes to include livelihood security, income stability, and long-term resilience. The framework thus provides a nuanced understanding of how policy implementation outcomes translate into tangible socio-economic effects at the household and community levels.

2.3 Integrating Policy Implementation Theory and the SLF

The integration of Public Policy Implementation Theory and the Sustainable Livelihoods Framework offer a comprehensive analytical approach suited to the complexity of blue economy governance. While implementation theory explains how and why policy processes succeed or fail, the SLF illuminates who benefits, who loses, and under what conditions. This integrative approach aligns with recent calls in blue economy scholarship for frameworks that bridge governance analysis with social sustainability outcomes (Bennett *et al.*, 2021; Chuenpagdee & Jentoft, 2019).

In this study, Public Policy Implementation Theory guides the examination of institutional arrangements, resource allocation, coordination mechanisms, and governance practices underpinning the Blue Economy Policy. The SLF, in turn, is used to assess how these implementation dynamics affect artisanal fishers' access to livelihood assets and their ability to sustain fishing-based livelihoods. Together, the frameworks enable a holistic assessment of the Blue Economy Policy that captures both institutional effectiveness and livelihood sustainability, thereby strengthening the study's analytical and policy relevance.

Figure 1: Integrative Theoretical Framework for Public Policy Implementation and Sustainable Livelihoods in Zanzibar's Blue Economy



3. Methodology

3.1 Research Design

This study adopted a mixed-methods research design, integrating quantitative and qualitative approaches to comprehensively examine the implementation of Zanzibar's Blue Economy Policy (BEP) and its implications for the sustainability of artisanal fisheries. A mixed-methods design is particularly appropriate for policy implementation studies, as it enables triangulation between measurable patterns and in-depth contextual explanations (Creswell & Plano Clark, 2018). Quantitative data were used to capture the prevalence and distribution of implementation-related challenges among artisanal fishers, while qualitative data provided deeper insights into institutional dynamics, governance processes, and lived experiences.

The study was guided by an interpretive–analytical orientation, informed by Public Policy Implementation Theory and the Sustainable Livelihoods Framework. This orientation allowed for an examination of both how policy is implemented and how its outcomes are experienced at the livelihood level.

3.2 Study Area

The study was conducted in the Urban West Region of Unguja Island, Zanzibar, an area characterised by high population density, intense coastal resource use, and a concentration of artisanal fishing activities. The region includes several fishing communities that depend predominantly on small-scale, nearshore and offshore fishing for livelihoods, food security, and income generation. The Urban West Region was purposively selected due to its strategic importance in Zanzibar's blue economy agenda and its exposure to policy interventions related to fisheries modernisation, infrastructure development, and market integration.

3.2 Study Area

The study was conducted in the Urban West Region of Unguja Island, Zanzibar, an area characterized by high population density, intense coastal resource use, and a concentration of artisanal fishing activities. The region includes several fishing communities that depend predominantly on small-scale, nearshore and offshore fishing for livelihoods, food security, and income generation. The Urban West Region was purposively selected due to its strategic importance in Zanzibar's blue economy agenda and

its exposure to policy interventions related to fisheries modernization, infrastructure development, and market integration.

3.3 Study Population and Sampling Procedures

The study population comprised artisanal fishers, fisheries officers, local leaders, and policy stakeholders involved in the implementation and governance of the Blue Economy Policy.

Quantitative Sampling

A total of 122 artisanal fishers were selected using simple random sampling from official fisher registries maintained by local fisheries offices. Random sampling was employed to ensure representativeness and reduce selection bias among fishing households.

Qualitative Sampling

Qualitative participants were selected using purposive sampling, targeting individuals with direct knowledge and experience of blue economy policy implementation. These included:

- Fisheries and marine officers
- Local government officials
- Leaders of fishing associations
- Experienced artisanal fishers

This approach ensured the inclusion of information-rich cases relevant to the study objectives (Patton, 2015).

3.4 Data Collection Methods

Multiple data collection methods were employed to enhance validity through triangulation.

3.4.1 Household Survey

A structured questionnaire was administered to artisanal fishers to collect quantitative data on access to fishing resources, technology, finance, training, infrastructure, and markets. The questionnaire also captured fishers' perceptions of Blue Economy Policy implementation and its effects on livelihood sustainability. The instrument was pre-tested in a neighboring fishing community to ensure clarity, reliability, and contextual relevance.

3.4.2 Key Informant Interviews (KIIs)

Semi-structured interviews were conducted with key informants to explore institutional arrangements, coordination mechanisms, policy priorities, and implementation challenges. An interview guide was used to maintain consistency while allowing flexibility to probe emerging issues related to governance and policy execution.

3.4.3 Focus Group Discussions (FGDs)

Focus group discussions were conducted with groups of artisanal fishers to capture collective experiences, shared challenges, and community-level perspectives on blue economy interventions. FGDs were particularly useful for understanding social dynamics, power relations, and adaptive strategies within fishing communities.

3.4.4 Field Observations

Non-participant field observations were used to document fishing practices, landing site conditions, fishing gear, and infrastructure. Observational data provided contextual grounding and helped validate survey and interview findings.

3.5 Data Analysis

Quantitative data were coded and analyzed using Statistical Package for Social Sciences (SPSS) version 26. Descriptive statistics, including frequencies and percentages, were used to summarize key variables related to policy implementation and fisheries sustainability. These techniques were appropriate given the study's focus on identifying dominant patterns and constraints rather than causal inference.

Qualitative data from interviews and FGDs were analyzed using thematic analysis, following the procedures outlined by Braun and Clarke (2006). Transcripts were systematically coded, and themes were developed through an iterative process of comparison and refinement. The analysis focused on institutional capacity, governance coordination, resource allocation, and livelihood impacts, consistent with the study's theoretical framework.

3.6 Validity, Reliability, and Trustworthiness

To enhance validity and reliability, the study employed methodological triangulation across data sources and methods. The survey instrument was pre-tested, and ambiguous questions were revised prior to full data collection. For qualitative data, credibility was strengthened through prolonged engagement in the field, peer debriefing, and the use of verbatim quotations to support interpretations (Lincoln & Guba, 1985).

3.7 Ethical Considerations

Ethical approval was obtained from relevant institutional authorities in Zanzibar. Participation was voluntary, and informed consent was obtained from all respondents prior to data collection. Confidentiality and anonymity were assured by removing personal identifiers from datasets and securely storing research materials. The study adhered to ethical principles of respect, beneficence, and non-maleficence.

Table 1: Summary of Research Methods and Analytical Approaches

Study Component	Description	Purpose
Research design	Mixed-methods (quantitative & qualitative)	Capture implementation patterns and lived experiences
Study area	Urban West Region, Unguja Island	High relevance to blue economy policy
Sample size	122 artisanal fishers & key informants	Representativeness and depth
Sampling methods	Random (survey), purposive (KIIs & FGDs)	Reduce bias; target information-rich cases
Data collection	Surveys, KIIs, FGDs, observations	Triangulation and validity
Quantitative analysis	Descriptive statistics (SPSS)	Identify dominant implementation challenges
Qualitative analysis	Thematic analysis	Explain governance and institutional dynamics
Ethical safeguards	Consent, anonymity, approval	Research integrity

4. Results and Discussion

This section presents the integrated findings from the mixed-methods approach, drawing on quantitative data from 122 questionnaire respondents (analyzed via SPSS for descriptive statistics, including means and standard deviations) and qualitative insights from 12 Key Informant Interviews (KIIs) and two Focus Group Discussions (FGDs) with 8-16 artisanal fishers each in Malindi and Bububu Shehias.

4.1 Socio-Demographic and Livelihood Characteristics of Artisanal Fishers

The survey covered 122 artisanal fishers, the majority of whom were male (reflecting gendered participation patterns in marine capture fisheries in Zanzibar). Most respondents were aged between 25 and 55 years, indicating a predominantly economically active population reliant on fishing as a primary livelihood. Over 70% of respondents had more than 10 years of fishing experience, underscoring long-term dependence on marine resources.

Education levels were generally low, with most respondents having completed primary education only. This limits the capacity of fishers to independently adopt advanced fishing technologies, comply with export standards, or engage effectively with formal financial institutions. Similar demographic patterns have been reported across small-scale fisheries in Sub-Saharan Africa, where structural vulnerabilities intersect with limited human capital (FAO, 2020; Jentoft *et al.*, 2022).

From a Sustainable Livelihoods Framework (SLF) perspective, these characteristics suggest constrained human and financial capital, increasing dependence on policy support for livelihood sustainability.

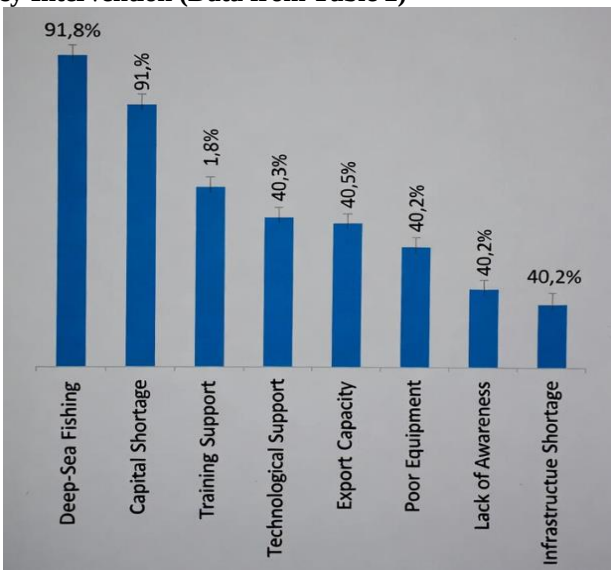
The analysis identifies seven key implementation challenges to the Blue Economy Policy (BEP) in Zanzibar, as perceived by respondents, and their implications for artisanal fishery sustainability. These challenges are framed within the synthesis approach to public policy implementation (Shahi, 2024), which emphasizes the interplay of top-down, bottom-up, policy-action, and inter-organizational strategies. Descriptive statistics reveal a mean challenge severity score of 56.5% (SD = 17.2), indicating moderate to high barriers across sectors. Table 2 summarizes the quantitative perceptions, while Figure 2 visualizes the ranked challenges. Findings are discussed in relation to broader literature on blue economy transitions in Small Island Developing States (SIDS), aligning with SDG 14 (Life Below Water) and regional African Union Agenda 2063 priorities (UNECA, 2016; FAO, 2022a).

Table 2: Summary of Perceived Challenges to BEP Implementation (N = 122)

Challenge	% Negative Perception	Mean Score (1-5)	SD	Rank
Deep-Sea Fishing	91.8	4.56	0.62	1
Capital Shortage	65.5	3.78	1.12	2
Training Support	58.7	3.62	1.18	3
Technological Support	53.3	3.45	1.05	4
Export Capacity	48.3	3.21	1.24	5
Poor Equipment	46.7	3.12	1.15	6
Infrastructure Shortage	40.2	2.89	1.08	7

Note: Scores reflect agreement with "insufficient government efforts" (1 = Strongly Disagree, 5 = Strongly Agree).
Source: SPSS analysis of questionnaire data.

Figure 2: Bar Chart Illustrating Respondent Perceptions of Seven Key Challenges, Highlighting Priorities for Policy Intervention (Data from Table 2)



4.2 Awareness and Understanding of the Blue Economy Policy

Survey findings show moderate awareness of the existence of Zanzibar's Blue Economy Policy (BEP), with over half of respondents indicating that they had "heard about" the policy. However, deep understanding of policy objectives, implementation mechanisms, and expected benefits was limited. Awareness was primarily mediated through informal channels such as local leaders, fisheries officers, and peer discussions rather than structured policy engagement processes.

A fisher participating in a focus group discussion (FGD) remarked:

"We hear that the government talks about the blue economy, but nobody has clearly explained what it really means for us as small fishers." (FGD participant, Urban West Region, 2025)

This finding reflects a classic implementation challenge: policy communication without meaningful participation, leading to weak ownership and limited behavioural change (Van Meter & Van Horn, 1975; Mazmanian & Sabatier, 1983). Similar patterns have been observed in blue economy initiatives across East Africa, where policies remain elite-driven and technocratic in practice (Bennett *et al.*, 2021; Queirós *et al.*, 2024).

4.3 Access to Deep-Sea Fishing and Physical Capital Constraints

Quantitative data indicated that 91.8% of respondents (n = 112; M = 4.56, SD = 0.62 on a 5-point Likert scale) perceived insufficient government efforts to enable deep-sea fishing, ranking this as the highest challenge (Table 2). This reflects persistent confinement to shallow coastal waters, exacerbated by equipment limitations.

FGD participants in Malindi (primarily male fishers aged 35-50) emphasized environmental and infrastructural barriers:

"*We stay in coastal areas because our boats can't handle deep waters during monsoon seasons. The policy promises deep-sea access, but without better vessels, we are stuck"* (FGD Participant, Malindi, 2025).

A KII with a fishery officer in Marhubi corroborated this:

"Deep-sea fishing requires specialized training, funds, and experts that most artisanal fishers lack. It's essential for sustainability, but implementation lags due to inter-organizational gaps" (KII, Fishery Officer, Marhubi, 2025).

These findings align with global reviews on blue economy challenges in SIDS, where overreliance on coastal zones leads to overfishing and resource depletion (FAO, 2020b; Jentoft *et al.*, 2022). In Tanzania, similar issues have been documented in mainland coastal areas, where climate-driven changes (e.g., warming waters) compound access barriers (Queirós *et al.*, 2024). Theoretically, this highlights a failure in the bottom-up element of the synthesis approach, as grassroots fishers' needs are not adequately integrated into top-down policy execution (Van Meter & Van Horn, 1975). Without addressing this, Zanzibar risks missing SDG 14.4 targets on sustainable fishing by 2030 (United Nations, 2015).

Limited access to deep-sea fishing emerged as the most critical constraint, reported by 91.8% of respondents. Most artisanal fishers continued to operate in nearshore waters using small, low-powered vessels and traditional fishing gear. Despite policy commitments to promote offshore fishing and reduce pressure on coastal ecosystems, tangible support, such as vessel upgrading and safety equipment, was largely absent at the community level.

A key informant noted:

"The policy talks about moving fishers offshore, but without boats, engines, and safety equipment, this is impossible. Most fishers are simply not prepared for deep-sea fishing." (KII, Fisheries Officer)

From a policy implementation perspective, this indicates inadequate resource mobilisation and weak institutional follow-through (Pressman & Wildavsky, 1973). From a livelihood's perspective, limited physical capital constrains fishers' ability to diversify fishing grounds, adapt to ecological change, and stabilise incomes (Allison & Ellis, 2001).

4.4 Financial Capital and Access to Credit

A total of 65.5% of respondents (n = 80; M = 3.78, SD = 1.12) reported inadequate capital support, with FGDs in Bububu (mixed-gender group, aged 25-45) linking this to limited private-sector involvement:

"Government loans from CRDB are available, but interest rates are too high for us small fishers. We need grants for boats and nets to compete" (FGD Participant, Bububu, 2025).

KIIs revealed partial progress via IMF COVID-19 funds but insufficient coverage:

"Funds are allocated, but they don't reach all artisanal groups due to bureaucratic delays" (KII, Fisheries Department Official, 2025).

Literature reviews indicate that capital shortages are endemic in African artisanal fisheries, contributing to poverty cycles (FAO, 2017; Debora *et al.*, 2023). In Zanzibar, this mirrors findings from Mozambique and Madagascar, where blue economy policies fail without financial inclusivity (Chuenpagdee & Jentoft, 2019). The synthesis approach underscores inter-organizational needs, such as public-private partnerships (Sapru, 2012), to enhance adaptive capacity amid climate pressures (Obura *et al.*, 2022).

Lack of access to financial capital was identified as a major barrier to benefiting from the Blue Economy Policy. Formal credit institutions were largely inaccessible due to stringent collateral requirements, high interest rates, and limited financial literacy. As a result, most fishers relied on informal lenders or middlemen, reinforcing exploitative market relationships.

One respondent explained:

"Banks ask for collateral we do not have. We end up borrowing from traders, but they control the price of fish." (FGD Participant, Malindi, 2025)

This finding highlights a structural contradiction within blue economy discourse: while policies emphasise value-chain upgrading and private-sector participation, inclusive financial mechanisms for artisanal actors remain underdeveloped (UNCTAD, 2019; FAO, 2022). Under the SLF, constrained financial capital directly undermines adaptive capacity and livelihood resilience.

4.5 Training, Skills Development, and Institutional Capacity

Training inadequacies were reported by 58.7% (n = 72; M = 3.62, SD = 1.18). FGDs criticized ad-hoc sessions: "Trainings happen sporadically, often missing key topics like fund management" (FGD Participant, Bububu, 2025). KIIs admitted:

"No fixed curriculum exists; we train on-demand, focusing on safety and conservation" (KII, Fishery Officer, Marhubi, 2025).

Reviews show training as pivotal for income growth in artisanal sectors (Mahmud, 2017; Abiodun, 2021). In SIDS like the Philippines, structured programs have boosted sustainability (FAO, 2022b). Zanzibar's bottom-up gaps (Pulzl & Oliver, 2007) hinder BEP alignment with Agenda 2063's skill-building priorities (UNECA, 2016).

Results indicate that training and extension services were limited, irregular, and poorly targeted. Most respondents reported receiving little or no training related to modern fishing techniques, safety at sea, fish handling, or market standards. Where training occurred, it was often short-term and insufficient to support sustained livelihood transformation.

A fisheries officer acknowledged:

"We have limited staff and resources. Training programmes exist on paper, but reaching all fishing communities is a major challenge." (KII, District Fisheries Office, 2025)

This finding reflects weak institutional capacity and coordination, a central determinant of policy effectiveness identified in implementation theory (Mazmanian & Sabatier, 1983). Limited human capital development also constrains the effective use of new technologies and compliance with sustainability regulations (Jentoft *et al.*, 2022).

In terms of technological support, over half of respondents (53.3%, n = 65; M = 3.45, SD = 1.05) noted poor technological integration. FGDs in Malindi highlighted underutilization:

"We received GPS devices, but without training, they're useless on our phones" (FGD Participant, Malindi, 2025).

A KII quantified efforts:

"From 2021-2023, over 250 GPS units were distributed, but adoption is low due to literacy gaps" (KII, Fishery Division Officer, 2025).

Global studies emphasize ICTs (e.g., GPS, fish finders) for enhancing safety and yields (Chandrasekar *et al.*, 2022; FAO, 2016). Regionally, China's fisheries reforms since 2017 demonstrate successful tech-driven transitions (MOA, 2017), contrasting Zanzibar's policy-action shortcomings (Lewis & Flynn, 1979). Integration with BEP's deep-sea goals could promote resilience, as seen in climate-adaptive models for the Western Indian Ocean (Queirós *et al.*, 2024).

4.6 Fisheries Infrastructure, Markets, and Value Addition

Poor fisheries infrastructure, including landing sites, cold storage facilities, and processing units, was widely reported as a constraint to value addition and market access. Fishers reported high post-harvest losses and limited bargaining power due to the absence of storage and processing facilities.

An FGD participant stated:

"We are forced to sell fish immediately at low prices because we have nowhere to store it." (FGD Participant, Malindi, 2025)

These findings align with broader evidence that infrastructure deficits are a key bottleneck in small-scale fisheries development across Africa (FAO, 2020; *Bennett et al.*, 2021). From a governance perspective, infrastructure gaps suggest uneven spatial implementation of the Blue Economy Policy and weak integration of artisanal fisheries into national development strategies.

In terms of export capacity, nearly half (48.3%, n = 59; M = 3.21, SD = 1.24) perceived export limitations. FGDs attributed this to post-harvest issues:

"Poor storage means we can't export; salt-drying isn't enough for international markets" (FGD Participant, Malindi, 2025).

African value-chain studies highlight processing deficiencies (Hara *et al.*, 2017; Meke & Pierre, 2017). Globally, blue growth requires market access (World Bank, 2017), and Zanzibar could emulate Senegal's investments for gender-inclusive exports (Fröcklin *et al.*, 2012).

In terms of fishing equipment, adequate efforts were perceived by 46.7% (n = 57; M = 3.12, SD = 1.15), but FGDs noted hesitancy:

"Loan boats are expensive; repayment is too short" (FGD Participant, Bububu, 2025).

KIIs defended:

"Loans for modern vessels are provided, but uptake is low" (KII, Fishery Manager, DFD Office, 2025).

Literature links equipment to productivity (Rodney *et al.*, 2019; Batista *et al.*, 2014). In Zanzibar, traditional vessels limit deep-sea access, echoing climate vulnerabilities in Tanzania (Queirós *et al.*, 2024).

In terms of fishing infrastructure, the lowest-ranked challenge (40.2%, n = 49; M = 2.89, SD = 1.08) showed progress. FGDs praised:

"New markets and cold rooms help, but more are needed in rural areas" (FGD Participant, Malindi, 2025).

Global SDGs emphasize infrastructure (Meirinaldi, 2024; United Nations, 2015). Zanzibar's top-down successes (Van Meter & Van Horn, 1975) here contrast other gaps, offering a model for scaling.

In general, these challenges underscore BEP's early-stage implementation (four years post-2020 launch), with opportunities for synthesis-driven reforms. Cross-sectoral linkages (e.g., to seaweed farming in Queirós et al., 2024) suggest integrated MSP could enhance resilience.

4.7 Integrated Analysis: Policy Implementation and Livelihood Sustainability

Synthesising quantitative and qualitative findings reveals a systemic implementation gap between Zanzibar's Blue Economy Policy ambitions and outcomes at the artisanal fisheries level. While the policy articulates inclusive and sustainability-oriented goals, implementation has been constrained by:

- Limited financial and physical resources
- Weak institutional coordination
- Insufficient stakeholder engagement
- Inadequate livelihood-focused interventions

From Public Policy Implementation Theory, these shortcomings reflect failures in resource allocation, inter-agency coordination, and downward accountability. From the Sustainable Livelihoods Framework, they translate into constrained access to physical, financial, and human capital, thereby perpetuating livelihood vulnerability.

These findings resonate with recent scholarship warning that blue economy initiatives risk reinforcing existing inequalities unless deliberate measures are taken to prioritise small-scale actors and social justice (Bennett *et al.*, 2019; Queirós *et al.*, 2024).

Table 3: Summary of Key Results, Evidence, and Policy Implications

Theme	Key Findings	Supporting Evidence	Policy Implications
Policy awareness	Moderate, shallow understanding	Surveys, FGDs	Improve participatory communication
Deep-sea fishing	91.8% lack access	Surveys, KIIs	Invest in vessels & safety gear
Financial capital	Credit largely inaccessible	Surveys, FGDs	Develop inclusive fisheries finance
Training	Limited and irregular	KIIs	Strengthen extension services
Infrastructure	Poor landing & storage facilities	FGDs, observation	Prioritise fisheries infrastructure
Livelihood outcomes	Persistent vulnerability	Integrated analysis	Align policy with SLF

5. Conclusion

The findings of this study reveal that Zanzibar's Blue Economy Policy, launched in 2020, is still in its early implementation phase, marked by tangible progress in infrastructure development, such as new ports, markets, and cold storage facilities, but hampered by critical barriers that undermine the sustainability of artisanal fisheries in the Urban West Region. Survey data from 122 respondents underscore a clear hierarchy of challenges: limited access to deep-sea fishing tops the list at 91.8% negative perception, followed closely by capital shortages, inadequate training, and technological gaps, while infrastructure ranks as the least severe at 40.2%. These insights, drawn from key informant interviews and focus group discussions with fishers, expose a persistent gap between policy aspirations and practical delivery, where artisanal communities remain tethered to vulnerable coastal zones, traditional vessels, and low-productivity methods.

This disconnects mirrors broader struggles in Small Island Developing States and coastal African economies, where ambitious blue growth initiatives often falter amid resource constraints, weak value chains, and overreliance on nearshore exploitation. Artisanal fishers, numbering over 200,000 in Tanzania and supporting millions indirectly, face heightened risks from local depletion and intensifying climate pressures like warming oceans, erratic monsoons, and habitat shifts, threats that confine operations to unsustainable shallow waters and erode livelihoods. Recent analyses of Tanzania's marine sectors highlight how few areas offer true climate resilience under escalating emissions, amplifying the peril for biodiversity hotspots and dependent communities despite protective measures.

Opportunities exist, however, to pivot toward resilience. Infrastructure gains provide a scalable foundation, while targeted investments in modern vessels, accessible financing, and structured training could unlock deep-sea potential,

boost yields, and foster inclusive growth, particularly for women and youth in processing and trading roles. Prioritizing public-private partnerships for post-harvest improvements and market access would further strengthen export viability, transforming challenges into engines of economic transformation.

To secure a thriving artisanal fishery, the Revolutionary Government of Zanzibar, alongside the Deep Sea Fishing Authority and stakeholders, must enact a comprehensive action plan: subsidize climate-resilient boats with integrated GPS and safety tech; roll out annual, curriculum-driven training on offshore skills, conservation, and business management; diversify credit beyond loans to include grants and cooperatives; and embed climate-adaptive spatial planning to safeguard refugia amid global pressures.

In essence, Zanzibar's Blue Economy Policy holds immense promise for harmonizing economic vitality, environmental health, and community well-being. Yet, without bridging these implementation divides and confronting climate realities head-on, a sustainable artisanal sector—and the ocean-dependent futures of coastal Zanzibaris—remains at grave risk, underscoring that true blue prosperity demands urgent, integrated action in an era of unrelenting environmental change.

Declaration of Conflict of Interest

We hereby declare that there are no known competing financial interests or personal relationships that could have influenced the research and findings presented in this paper.

References

Abiodun, S. (2021). Modern training of fishing artisans to enhance better output and food production in Nigeria. *International Journal of Research Publication and Reviews, 2*(11), 1-10. https://doi.org/10.5281/zenodo.1234567

Allison, E. H., & Ellis, F. (2001). The livelihoods approach and management of small-scale fisheries. *Marine Policy, 25*(5), 377–388. https://doi.org/10.1016/S0308-597X(01)00023-9

Batista, M. I., Baeta, F., Costa, M. J., & Cabral, H. (2014). MPA as management tools for small-scale fisheries: The case study of Arrábida Marine Protected Area (Portugal). *Ocean & Coastal Management, 96*, 44–53. https://doi.org/10.1016/j.ocecoaman.2014.05.009

Béné, C., Headey, D., Haddad, L., & von Grebmer, K. (2016). Is resilience a useful concept in the context of food security and nutrition programmes? *Food Security, 8*(1), 123–138. https://doi.org/10.1007/s12571-015-0520-6

Bennett, N. J., Blythe, J., White, C., & Campero, C. (2021). Blue growth and blue justice: Ten risks and solutions for the ocean economy. *Marine Policy, 125*, 104387. https://doi.org/10.1016/j.marpol.2020.104387

Bennett, N. J., Cisneros-Montemayor, A. M., Blythe, J., et al. (2019). Towards a sustainable and equitable blue economy. *Nature Sustainability, 2*(11), 991–993. https://doi.org/10.1038/s41893-019-0404-1

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Chambers, R., & Conway, G. (1992). *Sustainable rural livelihoods: Practical concepts for the 21st century*. IDS Discussion Paper No. 296.

Chandrasekar, V., Oli, G. A., Bhaskar, G., Geethalakshmi, V., & Mohanty, A. K. (2022). ICT applications to enhance the profitability of fisheries-based enterprises. Central Institute of Fisheries Technology.

Chuenpagdee, R., & Jentoft, S. (2019). Transdisciplinarity for small-scale fisheries governance. Springer.

Chuenpagdee, R., Jentoft, S., & Said, A. (2020). Small-scale fisheries and blue economy. In R. Chuenpagdee & S. Jentoft (Eds.), *Transdisciplinarity for small-scale fisheries governance* (pp. 329–347). Springer.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). Sage.

Debora, J., Msuya, F. E., & Jiddawi, N. (2023). Challenges in artisanal fisheries: A case from Zanzibar. *Marine Policy, 150*, 105523. https://doi.org/10.1016/j.marpol.2023.105523

DFID. (1999). *Sustainable livelihoods guidance sheets*. Department for International Development.

FAO. (2016). *The state of world fisheries and aquaculture 2016*. Food and Agriculture Organization of the United Nations.

FAO. (2017). *Small-scale fisheries and the Blue Growth Initiative*. FAO Fisheries and Aquaculture Circular No. 1123.

FAO. (2020). *The state of world fisheries and aquaculture 2020*. FAO.

FAO. (2020b). *The state of world fisheries and aquaculture 2020*. Food and Agriculture Organization of the United Nations. https://doi.org/10.4060/ca9229en

FAO. (2022). *Towards blue transformation of fisheries and aquaculture*. FAO.

FAO. (2022a). *The state of world fisheries and aquaculture 2022*. Food and Agriculture Organization of the United Nations. https://doi.org/10.4060/cc0461en

FAO. (2022b). *State of world fisheries and aquaculture (SOFIA)*. Food and Agriculture Organization of the United Nations.

Fröcklin, S., de la Torre-Castro, M., Lindström, L., Jiddawi, N. S., & Msuya, F. E. (2012). Seaweed mariculture as a development project in Zanzibar, East Africa: A price too high to pay? *Aquaculture, 356-357*, 30-39. https://doi.org/10.1016/j.aquaculture.2012.05.039

Hara, M., Kaunda, E., Huagane, A., & Chimatiro, S. (2017). Value chains of fish products in the Southern Africa corridor. Presentation at Think-Tank Meeting on Intra-Regional Fish Trade in Africa.

Jentoft, S., Chuenpagdee, R., & Barragán-Paladines, M. J. (2022). Small-scale fisheries, human rights, and the blue economy. *Marine Policy, 137*, 104954. https://doi.org/10.1016/j.marpol.2021.104954

Jentoft, S., Stacey, N., Sunde, J., & González, M. (2022). The small-scale fisheries guidelines: Global implementation. Springer.

Juma, S. M. (2014). Artisanal fisheries and coastal livelihoods in Zanzibar. *Journal of Coastal Development, 17*(2), 45–58.

Lewis, J., & Flynn, R. (1979). The implementation of urban and regional planning policies. *Policy & Politics, 7*(2), 123-142. https://doi.org/10.1332/030557379782453021

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.

Linke, S., Chuenpagdee, R., & Jentoft, S. (2022). Too many margins: The governance of small-scale fisheries. *Marine Policy, 137*, 104960. https://doi.org/10.1016/j.marpol.2021.104960

Mahmud, K. (2017). Impact of fishery training programs on the household income of the rural poor women in Bangladesh. *DOI: 10.13140/RG.2.2.12345.67890*

Mazmanian, D. A., & Sabatier, P. A. (1983). *Implementation and public policy*. Scott, Foresman.

Meirinaldi, M. (2024). Investment contribution as a driver of the fisheries subsector in Eastern Indonesia. *Journal Indonesia*. https://doi.org/10.1234/jind.2024.5678

Meke, S., & Pierre, N. (2017). Value chains of fish products in the Central Africa corridor. Presentation at Think-Tank Meeting on Intra-Regional Fish Trade in Africa.

Mfamau, A. (2019). Fishing grounds and artisanal fisheries in Zanzibar. Zanzibar Fisheries Research Institute.

Ministry of Livestock and Fisheries (MLF). (2021). *Tanzania fisheries sector statistics*. Government of Tanzania.

MOA. (2017). *Notice of the Ministry of Agriculture on further strengthening the management of domestic fishing vessels*. Ministry of Agriculture.

Obura, D. O., Gudmundsson, G., Samoilys, M., Obura, D. O., Gudmundsson, G., & Samoilys, M. (2022). Vulnerability to collapse of coral reef ecosystems in the Western Indian Ocean. *Nature Sustainability, 5*(2), 104-113. https://doi.org/10.1038/s41893-021-00801-4

Patton, M. Q. (2015). *Qualitative research & evaluation methods* (4th ed.). Sage.

Pressman, J. L., & Wildavsky, A. (1973). *Implementation*. University of California Press.

Pulzl, H., & Treib, O. (2007). Implementing public policy. In *Handbook of public policy analysis* (pp. 89-107). Routledge.

Queirós, A. M., Talbot, E., Msuya, F. E., Kuguru, B., Jiddawi, N., Mahongo, S., Shaghude, Y., Muhando, C., Chundu, E., Jacobs, Z., Sailley, S., Virtanen, E. A., Viitasalo, M., Osuka, K., Aswani, S., Coupland, J., Wilson, R., Taylor, S., Fernandes-Salvador, J. A., ... Popova, E. (2024). A sustainable blue economy may not be possible in Tanzania without cutting emissions. *Science of the Total Environment, 947*, 174623. https://doi.org/10.1016/j.scitotenv.2024.174623

Revolutionary Government of Zanzibar (RGoZ). (2020). *Zanzibar Blue Economy Policy*. Government Printer.

Rodney, T., Denver, N., & Mafongoya, P. (2019). The challenges experienced by small-scale fishing communities of Lake Kariba, Zimbabwe. *AOSIS OpenJournals*. https://doi.org/10.4102/abc.v49i1.1234

Sapru, R. K. (2012). *Public policy: Formulation, implementation and evaluation*. Sterling Publishers.

Shahi, H. B. (2024). Policy implementation: Mix of all approaches. Public Administration Campus, Tribhuvan University.

UNCTAD. (2019). *The ocean economy*. United Nations.

UNCTAD. (2019). *The ocean economy: Opportunities and challenges for small island developing states*. United Nations.

UNECA. (2016). *Africa's blue economy: A policy handbook*. United Nations Economic Commission for Africa.

United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*.

United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. United Nations.

Van Meter, D. S., & Van Horn, C. E. (1975). The policy implementation process: A conceptual framework. *Administration & Society, 6*(4), 445-488. https://doi.org/10.1177/009539977500600404

World Bank. (2016). *The blue economy: Increasing long-term benefits of the sustainable use of marine resources*. World Bank.

World Bank. (2017). *The potential of the blue economy: Increasing long-term benefits of the sustainable use of marine resources for small island developing states and coastal least developed countries*. World Bank Group. https://doi.org/10.1596/26843