

REPOA Brief



Capacity Building and Human Capital Development for Tanzania's Blue Economy Transformation

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Key Messages



Introduction

As one of the most labour intensive pillars of Tanzania's economy, the Blue Economy contributes 11.1 per cent of Mainland GDP and 26.8 per cent of Zanzibar's GDP, employs over 2.7 million people directly and indirectly, and generates ecosystem services valued at more than USD 200 billion (Maskaeva et al., 2024; UNECA, 2023). The National Blue Economy Policy (2024) explicitly recognises capacity building and human resource development (HRD) as cross cutting enablers of sector transformation and job creation. This reflects a strategic shift away from growth driven primarily by resource extraction and infrastructure expansion toward value addition, innovation, sustainability, and climate resilience.

Human capital development therefore represents a foundational pillar of Tanzania's Blue Economy transformation. The sustainable and productive use of marine, coastal, lacustrine, and riverine resources requires more than ports, vessels, and finance. It demands a workforce equipped with relevant technical, managerial, digital, and environmental

skills, supported by capable institutions and responsive training systems.

Against this backdrop, this policy brief examines the current state of capacity building and HRD in Tanzania's Blue Economy ecosystem. It assesses the existing skills base, identifies emerging and future workforce requirements, and evaluates the extent to which capacity development efforts are aligned with sector transformation and employment objectives, arguing that coordinated, evidence based human capital reforms are now essential to unlocking the full potential of the Blue Economy.

Methodology and Data

This study employed a mixed methods research approach to generate a comprehensive understanding of the research problem through the integration of qualitative and quantitative evidence.

First, a comprehensive documentary and literature review was undertaken to establish the conceptual

and empirical foundations of the study. The review covered peer reviewed academic literature as well as grey sources, including policy documents, legal and regulatory frameworks, government strategies, institutional reports, publications by international and non governmental organisations, and comparative research on the blue economy in selected countries.

Second, the study conducted secondary analysis of existing data obtained from official statistics, institutional databases, and published reports. These data were examined to identify trends, patterns, and structural dynamics relevant to the research objectives.

Third, key informant interviews (KIIs) were conducted with more than 60 purposively selected respondents, comprising over 20 institutional actors and approximately 40 additional key respondents in Dodoma, Dar es Salaam and Zanzibar in March and April 2026.

Qualitative data were analysed using thematic analysis, while secondary quantitative data were subjected to descriptive and trend analysis. Ethical principles, including informed consent, confidentiality, and responsible data use, were observed throughout the study.

Findings

Conceptualising Capacity Development in the Blue Economy

Capacity development in the Blue Economy extends well beyond technical training. International experience shows that successful maritime economies invest simultaneously in operational competence, professional and technical expertise, institutional capability, entrepreneurial skills, and workforce adaptability (OECD, 2020). In Tanzania's context, HRD must address three interlinked layers.

First are operational skills required in fisheries, ports, shipping, inland water transport, and tourism. These remain essential for safety, compliance, and day to day productivity. *Second* are professional and technical skills, including engineering, ICT, logistics, marine science, and environmental management, which enable sectors to adopt new technologies and move up value chains. *Third* are strategic and institutional capabilities for policy design, regulation, planning, and investment facilitation. Weakness in any layer constrains the effectiveness of the others,

leading to skills mismatches, underemployment, and low returns on investment.

The Existing Maritime and Fisheries Skills Base

Tanzania hosts specialised institutions such as the Dar es Salaam Maritime Institute and fisheries training centres that provide core competencies in navigation, seamanship, marine engineering, vessel operations, and fisheries science. These institutions have played a critical role in supporting maritime safety, port operations, and capture fisheries, which constitute an important national asset.

However, evidence from interviews and secondary studies indicates that the current skills base remains uneven and narrowly specialised. Training programmes tend to prioritise traditional operational roles, with limited emphasis on higher value or cross cutting skills such as processing and value addition, digitalisation of fisheries and port operations, quality assurance and traceability, and environmental sustainability and climate adaptation. As a result, graduates often struggle to transition into more productive segments of the Blue Economy, while employers report shortages of applied, multidisciplinary competencies (World Bank, 2020).

The Small Scale and Informal Workforce

A significant proportion of Tanzania's Blue Economy workforce operates in small scale, informal, and community based activities, particularly in fisheries, coastal tourism, inland water transport, and trade logistics. Skills acquisition in these segments occurs predominantly through informal apprenticeship and experiential learning. While this system provides entry into livelihoods, it also limits productivity, safety, regulatory compliance, and upward mobility.

The absence of structured certification and recognition of skills constrains access to finance, formal markets, and higher quality employment. Informal workers often lack the credentials required to participate in regulated value chains, including export fisheries and tourism, reinforcing cycles of low income and vulnerability (ILO, 2019). Integrating informal skills into recognised training and certification frameworks is therefore both an economic and social priority.

Emerging and Future Skills Needs

Digital systems such as vessel monitoring systems, port automation, logistics platforms, electronic trade facilitation, fisheries traceability, and data driven

marine planning are increasingly central to sector competitiveness. Consequently, future workforce needs include digital literacy, ICT maintenance, data analysis, cybersecurity awareness, and systems integration across maritime and trade related occupations (UNESCAP, 2025).

Current training systems, however, lag behind this transformation. Limited integration of digital skills into maritime and fisheries curricula risks widening the gap between training supply and labour demand as infrastructure and regulatory systems modernise. If unaddressed, this gap could lead to skills shortages, increased reliance on foreign expertise, and uneven distribution of technology driven productivity gains.

Environmental, Sustainability, and Climate Competencies

Alignment of the Blue Economy with sustainability and climate resilience objectives requires specialised competencies in marine and freshwater ecosystem management, climate risk assessment, environmental impact assessment, monitoring and enforcement, and nature based solutions. These skills are critical for meeting national commitments under the National Blue Economy Policy, Sustainable Development Goal 14, and international climate frameworks (UNEP, 2022).

Yet such competencies remain underrepresented in existing curricula, both at operational and professional levels. This constrains the ability of institutions and enterprises to integrate environmental considerations into planning and operations, and risks undermining the long term viability and legitimacy of Blue Economy growth.

Managerial, Entrepreneurial, and Financial Skills

Sector transformation and job creation depend not only on technical labour but also on entrepreneurship, management, and financial capability. Blue Economy SMEs frequently face challenges related to business planning, cost estimation, quality control, marketing, and access to finance. Without strengthened managerial and financial skills, firms struggle to scale, innovate, and integrate into higher value markets (OECD, 2018).

Evidence suggests that HRD strategies have yet to systematically incorporate enterprise development, cooperative and aggregation models, and financial literacy into training for fisheries, tourism, and logistics actors. As a result, job creation remains

concentrated in low productivity segments, limiting income growth and resilience.

Alignment with Sector Transformation and Job Creation

Tanzania's Blue Economy strategy seeks to shift from low value extraction toward value addition, diversification, and sustainable intensification. While current HRD efforts support this vision in some areas particularly ports and maritime safety, alignment remain weak in the fisheries value chains, inland water transport, and emerging sectors such as marine biotechnology and ocean based renewable energy.

The Blue Economy holds significant potential for job creation, especially for youth and coastal communities. However, without targeted and forward looking capacity development, employment risks being concentrated in insecure and environmentally vulnerable roles. International evidence shows that skills upgrading improves job quality, earnings, and resilience, reinforcing the centrality of HRD to inclusive growth (ILO, 2019).

A further constraint lies in institutional fragmentation. Training institutions, line ministries, local governments, and private sector actors operate with limited coordination, weakening labour market feedback loops and delaying curriculum reform. Stronger institutional linkages are essential to ensure that training responds to evolving sector needs (World Bank, 2020).

Conclusion

Capacity building and HRD represent both a constraint and a strategic opportunity for Tanzania's Blue Economy transformation. While foundational institutions and skills exist, misalignment with emerging sectoral needs, technological change, and sustainability imperatives threatens to limit productivity, job quality, and resilience. Strategic, coordinated, and evidence based HRD reforms are therefore essential to unlock the Blue Economy's full potential as a driver of inclusive growth, environmental stewardship, and long term national prosperity.

Policy Recommendations

First, the Government in collaboration with the private sector need to prioritise the development of a National Blue Skills and Human Capital Strategy

aligned with the National Blue Economy Policy. This strategy should map current and projected skills demand across blue sectors, define priority occupations and competency standards, and integrate formal, vocational, and informal training pathways within a coherent framework. Such an approach would reduce skills mismatches and provide clarity for training providers, employers, and learners.

Second, capacity development efforts should move beyond narrow technical training to embrace multidisciplinary and future oriented skills, including digital literacy, environmental management, and enterprise development. Embedding these competencies across maritime, fisheries, and logistics curricula would enhance workforce adaptability and support sector transformation.

Third, strengthening education–industry linkages is essential. Institutionalised partnerships among training institutions, employers, and communities, through apprenticeships, industry placements, and joint certification schemes, would improve labour market relevance and accelerate curriculum adaptation.

Fourth, policies should also promote inclusive capacity development, particularly for small scale operators, women, and youth. Recognition of prior learning, flexible certification, and tailored training programmes can bridge the gap between

informal livelihoods and formal markets, enhancing productivity and social outcomes.

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