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Advancing knowledge for Long-term Benefits and Climate Adaptation through Holistic Climate Services and Nature-based Solutions

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Enhancing Tanzania's Climate-Resilient Development: Integrating Nature-Based Solutions, Climate Services, Gender Inclusion, and Indigenous Knowledge.

Country Synthesis Report

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Source: This synthesis report is based on ALBATROSS Horizon Europe Deliverable D6.1: *Multi-level policy analysis* (Nyasimi, Almassy, Muhwanga, et al., 2025). For more detailed information and supporting evidence, readers are referred to the full report.

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List of Abbreviations

DRR	Disaster Risk Reduction
DRM	Disaster Risk Management
EbA	Ecosystem-based Adaptation
EIA	Environmental Impact Assessment
GFCS	Global Framework for Climate Services
IKLK	Indigenous Knowledge and Local Knowledge
IWRM	Integrated Water Resources Management
MDTP	Medium Term Development Policy Framework
NAP	National Adaptation Plan
NbS	Nature-based Solutions
NDC	Nationally Determined Contribution
SDG	Sustainable Development Goal
UN	United Nations
UNEA	United Nations Environment Assembly
WMO	World Meteorological Organization

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1. Objectives

This country synthesis report presents key findings from a detailed analysis of Tanzania's environmental and climate change policies, focusing on integrating Nature-based Solutions (NbS), climate services, Indigenous knowledge and local knowledge, gender inclusion and related cross-cutting themes.

This brief forms part of a broader multi-level policy analysis under the ALBATROSS Horizon Europe research project. The analysis aims to assess the extent to which, and key challenges and options of integrating Nature-based Solutions (NbS), climate services, Indigenous knowledge and local knowledge, gender inclusion into environmental and climate change policies across five African countries: **Ghana, Kenya, Madagascar, South Africa, and Tanzania.**

Drawing on national and sub-national policy documents, as well as relevant regional frameworks, the analysis mapped the extent and depth of policy integration across the following thematic areas:

- NbS approaches
- Climate services
- Gender-sensitive approaches and
- Indigenous Knowledge and Local Knowledge (IKLK).

The analysis also identified policy gaps, critical needs, and opportunities to scale up NbS and the integration of climate services, gender-sensitive approaches, and IKLK.

This **Tanzania country brief** provides an overview of national findings and presents a set of recommendations for advancing the integration of NbS, climate services, gender considerations and IKLK in national and sub-national policy documents.

2. Overview of the studied policy documents

The broader multi-level policy analysis included transnational, national and subnational environmental and climate policy documents. Some additional thematic documents were also included to cover additional thematic areas, such as meteorology services, gender mainstreaming, and IKLK. In total, 252 policies were included in the analysis from the five target countries. For Tanzania, 48 documents were analysed, consisting of multi-sectoral and sectoral policy frameworks, regulations, strategies, and plans.

2.1. SDG themes addressed by the policy documents

The analysed policy documents cover various SDG themes in Tanzania. SDG 15: Life on Land is covered by 71% of the policy documents, followed by SDG 13: Climate Action (56%) and SDG 6: Clean Water and Sanitation (50%). Additionally, SDG 14: Life Below Water is also addressed by 44% of the policy documents, focusing on marine and coastal ecosystem conservation. SDG 11: Sustainable Cities and Communities and SDG 12: Responsible

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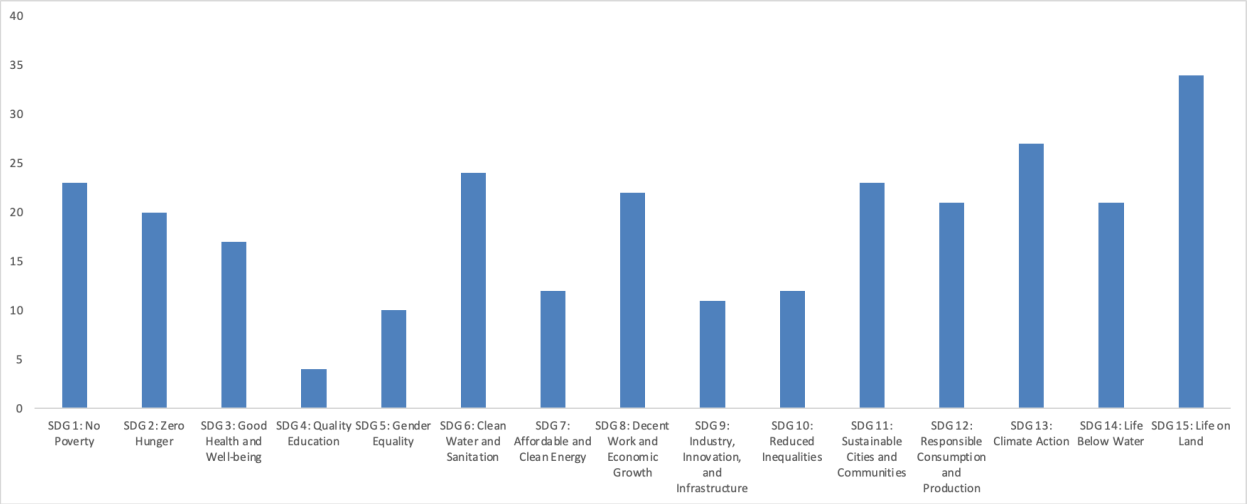
Consumption and Production are also well represented, accounting for 48% and 44% of policy coverage. SDG 7: Affordable and Clean Energy was covered only in 25% of the documents, indicating a potential policy gap given the central importance of sustainable and low-carbon energy development in the Sub-Saharan African context. Socio-economic objectives such as SDG 1: No Poverty, SDG 2: Zero Hunger, and SDG 8: Decent Work and Economic Growth also feature more prominently, with 48%, 42% and 46% of the reviewed policy documents, respectively. Fewer policy documents, 21% and 8%, respectively, integrated themes relevant to SDG 5: Gender Equality and SDG 4: Quality Education.

Figure 1: Distribution of SDG themes in the studied policy documents of Tanzania



Source: Calculation based on the multi-level policy analysis for Deliverable 6.1

2.2. *Climate hazards identified and addressed in environmental and climate policies*

The policy documents reviewed in Tanzania identified a broad range of climate hazards:

- **Drought:** A key climate concern addressed in 52% of the reviewed policies is drought. Regarding water scarcity, policy documents addressed agricultural drought (8%), which results in insufficient soil moisture to sustain crop growth and reduced yields.
- **Flooding:** Among the most frequently addressed hazards, flooding is a predominant concern, with 46% of the reviewed policies incorporating relevant considerations. Specific types of flooding mentioned include flash floods (8%), coastal flooding (6%), urban (pluvial) floods (4%), and riverine floods (4%).
- **Soil erosion and land degradation:** The third most frequently recognised climate risk is soil erosion, referenced in 40% of the policies. Many policy documents linked these problems to unsustainable land-use practices and deforestation.
- **Coastal erosion**: Several reviewed policies (17%) highlighted coastal erosion as a significant risk, often linked to sea-level rise and human-induced shoreline changes.
- **Other notable hazards include wildfires** (29%), forest fires (15%) and landslides (10%). Additionally, some policies also noted vulnerabilities to seawater intrusion (15%) and extreme weather events, such as strong winds (17%).

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3. Integration of nature-based solutions (NbS) in environmental and climate policies

According to **internationally accepted definitions**,[1] NbS integrates various approaches such as ecosystem-based management, sustainable forest and water management, agroecology and agrobiodiversity, sustainable agriculture, urban ecosystem regeneration and green and blue infrastructure development. These approaches are implemented through various actions, such as reforestation and forest conservation, coastal and marine protection, freshwater and wetland conservation and restoration, ecosystem-based river basin and floodplain management, erosion control measures, regenerative and climate-resilient agriculture and rangeland management, as well as urban greening measures and hybrid of blue/green/grey infrastructures solutions.

Among the **reviewed policy documents for Tanzania**, around **70% contained NbS measures and actions**. The level of NbS integration across these documents was evaluated according to the following categorisation:

- **High:** NbS approaches are prominently embedded throughout the document, with straightforward integration into strategic objectives and implementation mechanisms. The document may also explicitly position NbS as a core component of climate adaptation and environmental management.
- **Medium-high:** NbS approaches are well-integrated into the policy document and supported by specific policy measures, but they have limited cross-sectoral coordination and alignment with broader policy objectives, such as health, education, or economic resilience.
- **Medium:** NbS approaches are referenced in multiple sections of the document. However, these remain fragmented or limited to general principles without detailed implementation actions.
- **Limited:** The policy document includes a few NbS measures, but these are limited in scope and lacking detail.

3.1. High-level, multi-sectoral policies, strategies and plans

NbS approaches were included in the broader national development strategies of all five of the studied African countries. Most reviewed high-level, multi-sectoral policy documents, such as national development plans, spatial planning frameworks, and other long-term strategic documents guiding sustainable development, included some relevant NbS aspects. An overview of the identified high-level, cross-sectoral policy documents that integrate NbS approaches in Tanzania is presented below.

[1] United Nations Environment Assembly of the United Nations Environment Programme (2022). Resolution adopted by the United Nations Environment Assembly on 2 March 2022: 5/5. Nature-based solutions for supporting sustainable development. UNEP/EA.5/Res.5. Nairobi, 22 and 23 February 2021, and 28 February - 2 March 2022. United Nations Environment Programme. https://wedocs.unep.org/handle/20.500.11822/39864

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Table 1: High-level and cross-sectoral policy documents in Tanzania, including NbS approaches and considerations

Name of the policy document	NbS integration	Specific references
Tanzania Development Vision 2050	Medium	Biodiversity integrity to ensure healthy natural ecosystems. Healthy wetlands and sustainable water resource management. A pollution-conscious society through green infrastructure and a circular economy. Climate-smart practices and leveraging climate finance opportunities.
National Five-Year Development Plan (2021-2026)	Medium	Sustainable water and land use management through integrated land use planning. Community-based forest conservation by 100,000 ha by 2026. Implement the National Strategy on Land Degradation and Water Catchments. Promote eco-tourism in Marine Protected Areas. National tree planting campaign with 1.5 million trees per district annually.

Stemming from national development policies, some NbS measures were also identified in the county-level and local development plans of the studied countries.

Table 2: Sub-national and local development plans including NbS approaches and considerations

Name of the policy document	NbS integration	Specific references
Kigamboni Municipal Council Second Strategy Plan (2021-2026), Tanzania	Limited	Tree planting program with a target of 1.5 million trees. Protecting water sources within the district. Establishing a council tree nursery. Community sensitization on managing forests.

3.2. Climate regulations, strategies and plans

The reviewed African countries also explicitly integrated NbS into their international climate commitments under the Paris Agreement. Tanzania's updated first NDC (2021) included the promotion of climate-smart agriculture interventions, sustainable forest and wildlife management, coastal and marine resource management, and a nationwide forest landscape restoration program.[2]

Specific NbS considerations were also identified in national climate change strategies and plans. The policies that integrate NbS more comprehensively are presented below.

Table 3: Climate change policies, strategies and plans in Tanzania, including NbS approaches and considerations

Name of the policy document	NbS integration	Specific references
National Climate Change Response Strategy (2021-2026), Tanzania	High	Green space development and nature-based urban adaptation; Water resilience in basins; Rainwater harvesting; Aquaculture development; Climate-smart forest management; Nationwide tree planting; Conservation corridors and climate refugia; Buffer zones and land-use planning for conservation; Climate-smart agriculture and efficient water

[2] https://unfccc.int/sites/default/files/NDC/2022-06/TANZANIA_NDC_SUBMISSION_30%20JULY%202021.pdf

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		use; Diversified cultural and nature-based tourism; Degraded land restoration.
National Adaptation Programme of Action (2007-2020), Tanzania[3]	Medium-high	Alternative farming systems and water harvesting; Alternative water storage technologies for communities; Community-based catchment conservation programs; Afforestation in degraded lands using adaptive, fast-growing tree species; Sustainable tourism in coastal areas.
National Strategy for Mainstreaming Gender in Climate Change, 2013, Tanzania	Medium-high	Strengthen women's participation in REDD+; Demarcate and protect water catchment areas; Mobilise women to plant trees upstream; Rainwater harvesting; Agriculture infrastructure for climate adaptation; Climate-resilient crops on women's plots; Women's participation in integrated coastal zone management.

3.3. Environmental regulations, strategies and plans

The policy review also assessed sectoral policy documents focusing on general environmental protection, biodiversity protection, land and forest management, water and coastal resource management and agriculture. Focusing on different ecosystems, such as forests, freshwater and coastal areas, rangelands, and agricultural and urban areas, various types of management, conservation and restoration actions were identified across the reviewed documents.

The table below highlights key environmental policy documents with a higher level of NbS integration in Tanzania.

Table 4: Environmental policy documents in Tanzania, including NbS approaches and considerations

Name of the policy document	NbS integration	Specific references
National Environmental Policy, 2021, Tanzania	Medium-high	Land degradation restoration; Conservation of water sources and trans-boundary water management; Ecosystem-based conservation of biodiversity; Integrated forest management; Private sector investment in forest conservation.
National Environmental Master Plan for Strategic Interventions (2022 - 2032)	High	Restoration of degraded lands; Reforestation; Catchment management for water stability; Wetland and mangrove conservation; Sustainable agriculture promotion; Alternative livelihoods in coastal communities; Climate-resilient infrastructure; Urban greening initiatives.
Forest Act (2002, amended in 2004, 2008, 2016, 2020), Tanzania	Medium	Sustainable forest management for biodiversity, watershed, and soil protection; Ecosystem service conservation; Public awareness and international cooperation; Environmental impact assessments for forest developments.

[3] Although the National Climate Change Response Strategy (2021-2026) provides an overarching climate action framework, Tanzania is currently in the process of formulating its National Adaptation Plan (NAP). As the subsequent NAP has not yet been published, the Tanzania National Adaptation Programme of Action (2007-2020) was included in the review as the most recent official adaptation planning document outlining priority climate actions.

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National Forest Policy (2018), Tanzania	Medium-High	Forest landscape restoration through natural regeneration and fast-growing species; Urban tree planting; Forest conservation for watershed management; Biodiversity protection.
National Forest Policy Implementation Strategy 2018 - 2028, Tanzania	Medium	Sustainable forest and tree management; Urban forestry and botanical gardens; Strengthening Forest reserves and protected areas; Sector-specific EIAs for forestry investments.
National Water Policy (2002), Tanzania[4]	Medium	Water conservation and quality management; Protection of wetlands and ecosystems; Sustainable groundwater resources; Environmental awareness on land use practices.
Ministry of Water Five Year Medium Term Strategic Plan 2019/20-2023/24, Tanzania	Medium	Strengthen Integrated Water Resources Management; Enhance water storage and security in all basins; Ensure sustainable integrated management of water resources.
Wildlife Policy Implementation Strategy 2023-2033	Medium	Maintain viable conservation areas; Protect wildlife habitats and wetlands; Implement rangeland rehabilitation for climate resilience.
National Biodiversity Strategy and Action Plan 2015 - 2020[5]	High	Reduce habitat degradation; Strengthen biodiversity policies; Control invasive species; Expand marine protected areas; Enhance ecosystem resilience and carbon stock contribution.
National Agriculture Policy (2013), Tanzania	Medium	Promote sustainable agriculture; Enhance carbon storage through conservation agriculture and agroforestry; Increase awareness of agriculture's role in carbon markets.

3.4. Identified trends in NbS approaches and actions.

The quantitative analysis of the NbS integration patterns identified in the policy documents reveals varying priorities across ecosystems and thematic areas. Regarding the policy documents reviewed, the following trends can be identified:

- **Ecosystem focus:** Freshwater resources (71%) are the most frequently addressed ecosystem, followed by forests (50%) and coastal and marine ecosystems (48%). Wetlands (35%) and agricultural land (29%) are moderately considered, while urban areas (13%) and mountains (10%) receive minimal attention.

- **Type of NbS actions:** Biodiversity protection (63%) and freshwater resource protection (52%) are the most integrated actions. Coastal and marine conservation (40%) and reforestation (42%) are also emphasised. Climate-resilient agricultural

[4] The National Water Policy of 2002 (NAWAPO) has been under review and a Draft National Water Policy 2023 was released, which proposes several significant updates to the original policy. However, the updated version has not yet been formally adopted, and the 2002 policy was included in this analysis.
[5] Tanzania's National Biodiversity Strategy and Action Plan (NbSAP) 2015-2020 remains the most recent official version; no updated strategy could be identified in publicly available sources.

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practices (25%), anti-desertification measures (19%) and urban greening and blue infrastructure (15%) are among the least prioritized.

- **Level of NbS integration**: 20% of the reviewed policy documents integrate NbS approaches more comprehensively. Another 52% integrated NbS at a medium level by including some relevant measures but mainly focusing on specific ecosystems and activities.

3.5. Recommendations for NbS integration

Strengthening NbS integration in high-level frameworks and multi-sectoral policies: Both the Tanzania Development Vision 2050 and the latest National Five-Year Development Plan 2021/22-2025/26 include relevant measures that align with the NbS concept. However, these activities could be expanded to cover all relevant ecosystems to maximise the benefits of nature-based approaches. At the subnational-level, the Kigamboni Municipal Council Second Strategy Plan 2021/22-2025/26 and the Dar es Salaam Masterplan 2016-2036 are both well-placed to integrate urban NbS approaches as core strategies to support urban development. The most recent national implementation strategy for the Convention on Biological Diversity (NbSAP 2015-2020) comprehensively defined NbS as a core strategy for achieving ecosystem resilience. This strategy can serve as a starting point for systematically mainstreaming NbS measures to national and sub-national policies.

Strengthening the legislative framework for NbS: NbS approaches remain largely absent from most assessed laws. The Environmental Management Act (2004, as amended) could be strengthened to systematically integrate NbS into environmental planning, conservation, and restoration efforts. The Wildlife Conservation Act (2009, amended in 2022) could incorporate legal provisions for habitat restoration and rewilding. Similarly, the Water Resource Management Act (2009, amended in 2022) could introduce guidelines for nature-based water resource management, such as watershed reforestation and wetland restoration. The Land Act (1999, amended) could mandate NbS approaches in land-use planning to protect and restore green corridors, urban and peri-urban forests, wetlands, and riparian buffer zones. Additionally, the Environmental Impact Assessment and Audit Regulations (2005, amended in 2018) should be updated to require NbS considerations in infrastructure and development projects.

Strengthening NbS and EbA integration in key environmental and sectoral policy documents: The National Climate Change Response Strategy (2021-2026) and the National Environmental Master Plan for Strategic Interventions (2022-2032) comprehensively integrate NbS approaches, addressing conservation, management, and restoration activities across different ecosystems. The National Environmental Policy (2021), the National Forest Policy (2018), the National Water Policy (2002, currently under revision), and the National Agriculture Policy (2013) already incorporate relevant NbS measures. However, the scope of these measures could be expanded to promote ecosystem-based management and restoration, besides conservation approaches, more systematically and connecting different ecosystems. These measures should also be better integrated into other sectoral strategies, which currently

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integrate NbS to a limited extent, such as the National Agroforestry Strategy (2024-2031) and the National Disaster Management Strategy (2022-2027).

Integrate NbS into urban planning: Tanzania's urban planning policies should explicitly incorporate NbS strategies to enhance climate resilience in cities. The Urban Planning Act (2007, amended in 2017) should mandate the integration of NbS in urban development plans, ensuring the conservation and restoration of urban forests and wetlands. Additionally, the Dar es Salaam Masterplan 2016-2036 could enhance NbS by incorporating green public spaces and expanding nature-based freshwater and coastal water resource management strategies.

Introducing financing strategies and mechanisms for NbS: Most policies and strategies, even if they include NbS or EbA as strategic measures, do not allocate specific implementation budgets to such activities and lack clear financial mechanisms to support large-scale implementation. Establishing a dedicated funding stream can mobilise resources for large-scale NbS investments. In addition, considerations for innovative financial instruments and mechanisms, such as thematic bonds, biodiversity credits, carbon credits, guarantees or payment for ecosystem services, could incentivise private sectors/businesses to invest in NbS.

Monitoring frameworks: Introducing NbS-specific indicators and reporting mechanisms can help track progress, assess multiple co-benefits, support stakeholder involvement and facilitate evidence-based policy adjustments. Strengthening monitoring, research, and data collection can inform evidence-based decision-making; for example, cost-benefit analysis can demonstrate the effectiveness of NBS.

4. Climate services provisioned in policy

The Global Framework for Climate Services (GFCS) of the WMO defines climate services as the "*provision and use of climate data, information, and knowledge to assist decision-making,*" with key components including observations and monitoring, research, modelling and prediction, climate services information systems, user-provider engagement, and capacity development. As such, climate services can play a critical role in supporting climate risk management, adaptation planning and evidence-based decision-making in various sectors, including Disaster Risk Reduction (DRR)/Disaster Risk Management (DRM), agriculture and food security, water management, health and energy. [6]

The analysis found that less than one-fourth of the reviewed Tanzanian policy documents consider climate services. The level of climate services integration was evaluated according to the following categorisation:

- **High:** Climate services are prominently embedded throughout the document, with clear integration into strategic objectives and implementation frameworks. The document may

[6] **World Meteorological Organization (WMO).** (n.d.). *Components of GFCS*. Global Framework for Climate Services. Retrieved February 25, 2025, from https://gfcs.wmo.int/site/global-framework-climate-services-gfcs/components-of-gfcs

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also explicitly position climate services as central to climate adaptation and risk management.

- **Medium-high:** Climate services are well-integrated and supported by specific policy measures, but with limited cross-sectoral coordination or alignment with broader policy areas such as health, agriculture, or economic planning.
- **Medium:** Climate services are referenced in multiple sections, but treatment is often fragmented or limited to general principles without detailed implementation strategies.
- **Limited:** Climate services are mentioned occasionally, with minimal scope and lacking detail in terms of operationalisation or institutional support.

4.1. High-level, multi-sectoral policies, strategies and plans

The integration of climate services into high-level and multi-sectoral frameworks in Tanzania is limited. The Tanzania Development Vision does not include provisions for climate services and the National Five Year Development Plan 2021/22–2025/26 only includes limited considerations through aiming to improve meteorological infrastructure and services.

4.2. Climate policies, strategies and plans

In its updated NDC (2021), Tanzania aimed to strengthen climate services for agriculture, fisheries, forestry, and water management, improve early warning systems for extreme weather, sea level rise, and disease outbreaks; enhance DRR/DRM; and expand climate research and systematic observation.

The majority of the climate policy documents of Tanzania also integrate climate services. Identified goals and measures mainly focused on climate data and monitoring and early warning systems and, in some instances, also to improve evidence-based decision-making.

Table 5: Climate policy documents in Tanzania incorporating climate services

Name of the policy document	Climate services integration	Specific references
National Strategy for Mainstreaming Gender in Climate Change, 2013, Tanzania	Medium-high	Develop gender-responsive climate data banks, strengthen agricultural early warning systems, and enhance climate risk communication.
National Climate Change Response Strategy (2021-2026), Tanzania	Medium-high	Promote climate risk management, improve weather forecast services, and strengthen climate monitoring capacity.
Tanzania Meteorological Authority Act, No. 2 of 2019	High	Implement national climate policies on weather and climate. Regulate and coordinate meteorological activities. Organize and maintain observation networks. Provide weather and climate services for DRR. Issue severe weather warnings. Publish climate summaries and reports. Cooperate with institutions on meteorology, climate variability, and change. Conduct research and training in meteorology. Ensure

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		international meteorological standards compliance. Develop early warning systems.

4.3. Environmental policies, strategies and plans

Relevant activities are also included in some of Tanzania's sectoral policies, which mainly focus on water resources management, agriculture and DRM/DRR. See the table below.

Table 6: Environmental policy documents in Tanzania incorporating climate services

Name of the policy document	Climate services integration	Specific references
National Environmental Master Plan for Strategic Interventions, 2022-2032, Tanzania	Medium	Develop a Climate Risk Atlas for coral reefs, enhance monitoring and early warning systems for coastal and freshwater environments, assess coastal areas threatened by sea-level rise, implement disaster communication guidelines, and strengthen community-based early warning systems.
National Water Policy, 2002, Tanzania[7]	Medium	Improve water resources assessment, ensure flood mitigation plans, strengthen disaster management measures, and increase access to hydrological data.
Tanzania Climate Smart Agriculture Programme (2015), Tanzania	Medium-high	Comprehensive Early Warning System and Contingency Plan development; Agro-climate information services and timely-use of agro-weather products.
Disaster Management Act (2015), Tanzania	Medium	Formulate and coordinate national disaster management policies and plans. Establish early warning systems across all sectors. Strengthen inter-ministerial coordination for disaster response. Promote public education and awareness of disaster preparedness. Mobilize resources for disaster management. Data sharing from relevant institutions is required for disaster risk planning.
National Disaster Management Strategy (2022 – 2027), Tanzania	Medium-high	Improve multi-hazard, people-centred early warning systems. Strengthen disaster response capacity. Utilize ICT and geospatial technologies for climate risk monitoring and warning dissemination. Integrate DRR into climate adaptation strategies. Conduct awareness programs on ecosystem-based DRM. Promote innovations for managing climate-related disaster risks. Facilitate knowledge exchange for disaster resilience.

4.4. Identified trends in climate services integration

The policy analysis identified the following trends concerning the integration of climate services in the reviewed policy documents.

[7] The National Water Policy of 2002 (NAWAPO) has been under review and a Draft National Water Policy was released in 2023, which proposes several significant updates to the original policy. However, the updated version has not yet been formally adopted, and the 2002 policy was included in this analysis.

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- **Types of climate services integrated**: Climate observations, data collection and monitoring activities and climate services information systems are the most frequently included in the reviewed policy documents (29% and 27% of all documents, respectively). The policies also place some more emphasis on climate research and modelling activities

- (25%). However, the use of climate information to support decision-making and build capacity and resilience is more limited.
- **Sectors addressed by climate services:** Disaster risk reduction (15%) and water (15%) are the most targeted sectors, followed by agriculture and food security (13%). Overall, the sectoral focus is less emphasised, and many documents provide general provisions.
- **Level of integration:** Only 12% of the policies integrate climate services more comprehensively. A further 10% exhibit a moderate level of integration. Approximately 80% of the policy documents do not consider climate services.

4.5. Recommendations for CS integration

Enhance the integration of climate services into national policy frameworks: The National Climate Change Response Strategy (2021-2026) and the Tanzania Meteorological Authority Act (2019) both contain provisions for climate data collection, disaster risk assessment, and early warning systems. However, these provisions are not systematically integrated into environmental and sectoral water, agriculture, and forestry policies. Sectoral policies, such as the National Environmental Policy (2021), the National Forest Policy (2018), the National Water Policy (2002, currently under revision), and the National Agriculture Policy (2013) currently contain limited requirements for climate information services, and they could establish linkages between environmental monitoring activities and climate data collection and assessments. Similarly, implementation strategies, such as the National Environmental Master Plan for Strategic Interventions (2022-2032), the National Agroforestry Strategy or the Forest Policy Implementation Strategy for 2018-2028, should also require the utilization of climate information systems in sectoral planning. Additionally, local development plans and municipal master plans could also integrate provisions for using climate information in urban resilience strategies and land-use planning.

Improve climate data availability and accessibility: The Tanzania Meteorological Authority Act (2019) and National Climate Change Response Strategy (2021-2026) foresee climate data collection, but provisions for the use of climate data in planning and decision-making processes remain limited. With the introduction of a centralised Climate Information System, climate information could be consolidated and distributed across all sectors. For example, the National Environmental Policy, the National Environmental Master Plan for Strategic Interventions (2022-2032) and the Environmental Management Act (2004, as amended) could also support these processes by mandating and integrating climate data collection in environmental monitoring processes. Similarly, the Disaster Management Act (2015) could require mandatory climate risk integration in sectoral disaster assessments.

Expand early warning systems: The Disaster Management Act (2015) and the National Disaster Management Strategy (2022-2027) include provisions for multi-hazard early warning

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systems, but linkages to climate-induced risks such as droughts, agricultural pests, water shortages, and health impacts could be strengthened. The National Agriculture Policy (2012) and the upcoming revision of the National Water Policy could also be strengthened with the integration of climate forecasting to support early warning systems for floods and droughts.

Furthermore, provisions for localised early warning systems could support farmers, coastal communities, and vulnerable populations.

5. Gender-sensitive approaches in policies

Gender-sensitive and equity-based approaches are increasingly recognised as essential to effective climate adaptation strategies. Such approaches can significantly reduce vulnerability across critical African sectors, such as water, health, food systems, and livelihoods. [8]

The majority of the policy documents studied in Tanzania incorporate social inclusion considerations, although many of the reviewed documents do not cover all relevant needs. Regarding **gender mainstreaming**, around 40% of the reviewed policy documents included specific gender-responsive measures. An additional 30% of the documents acknowledged the need to address gender inequality without listing specific actions to address these challenges. The remaining one-third of the reviewed policy documents included limited or no consideration of gender inclusion.

The table below provides an overview of identified environmental and climate policies with more comprehensive gender-responsive measures in Tanzania.

Table 7: Gender-responsive approaches in the environmental and climate policy documents of Tanzania

Title of Policy	Specific references
National Forest Policy (2018), Tanzania	Ensure gender equity in forest management and development.
National Environmental Policy, (2021), Tanzania	Strengthen gender mainstreaming in environmental management, raising awareness of the roles of gender in environmental management
National Agroforestry Strategy II (2024-2031), Tanzania	Encourage women's participation in agroforestry interventions.
Wildlife Policy Implementation Strategy 2023-2033, Tanzania	Enhance equality and equitable participation of women in wildlife and wetlands conservation: at least 30% of women and other vulnerable groups engaged in conservation by 2033.

[8] IPCC, 2023: Annex I: Glossary [Reisinger, A., D. Cammarano, A. Fischlin, J.S. Fuglestvedt, G. Hansen, Y. Jung, C. Ludden, V. Masson-Delmotte, R. Matthews, J.B.K Mintenbeck, D.J. Orendain, A. Pirani, E. Poloczanskaa, and J. Romero (eds.)]. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 119-130, doi: 10.59327/IPCC/AR6-9789291691647.002

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National Forest Policy Implementation Strategy 2018-2028, Tanzania	Gender equity and equality in the forest sector are enhanced. Programs to support women in forestry increased.
National Disaster Management Strategy (2022-2027), Tanzania	Integration of gender, youth, persons with disabilities, and other vulnerable groups in DRM. Guidelines on mainstreaming gender in DRM will be developed by 2027.
National Climate Change Response Strategy (2021-2026), Tanzania	Promote gender-responsive climate interventions.
National Strategy for Mainstreaming Gender in Climate Change (2013), Tanzania	Mainstream gender into climate change action plans of priority sectors, including agriculture, water, health, energy, forests and integrated coastal management. Cross-sectoral measures include policy development, capacity-building and awareness-raising.

5.1. Recommendations for improving the inclusion of gender considerations

Strengthen gender mainstreaming in environmental and climate policies: Policies must integrate social and gender considerations more systematically into environmental and climate policies. Documents such as the National Strategy for Mainstreaming Gender in Climate Change (2013) and the National Guidelines for Mainstreaming Gender into Environment (2014) provide a strong foundation for gender-responsive policies. The National Climate Change Response Strategy (2021-2026). also aims to promote gender-responsive climate change adaptation and mitigation interventions. However, many implementation strategies and plans, such as the National Adaptation Plan of Action, the National Environmental Master Plan for Strategic Interventions (2022 - 2032) or the National Biodiversity Strategy and Action Plan, currently only include limited gender considerations. These policies should be extended to address how women and other vulnerable groups can be included in natural resource management, biodiversity conservation and ecosystem restoration activities.

Gender-sensitive climate services and DRR/DRM: Climate services and DRM/DRR strategies should also incorporate gender-responsive approaches. While the National Disaster Management Strategy (2022-2027) includes provisions for gender-responsive disaster management, provisions could also be included in the Tanzania Meteorological Authority Act 2019, and the Disaster Management Act 2015.

Link economic opportunities and livelihoods to NbS approaches: Policies should be strengthened to promote green job opportunities for women and vulnerable groups in agriculture, forestry and nature conservation. Sectoral policies such as the National Agriculture Policy, National Forestry Policy, and National Fisheries Policy already incorporate gender considerations, but they could be further strengthened to include measures that enhance women's participation in climate-resilient employment opportunities. The Tanzania Climate Smart Agriculture Programme and the National Agroforestry Strategy II (2024-2031) could also support women's participation in agroforestry, conservation agriculture, and ecotourism. Moreover, the National Land Policy and Land Use Planning Act (2007) could incorporate measures to strengthen women's land tenure rights and access to natural resources.

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6. Indigenous knowledge and local knowledge in policies

Around 45% of reviewed policy documents contain concrete provisions for integrating indigenous local knowledge (IKLK), either comprehensively or partially. The remaining documents include limited considerations or do not mention IKLK systems.

Across policy documents, IKLK is mentioned in connection to natural resource management, climate change adaptation, DRR/DRM, and sustainable agriculture. Policies promote IKLK through documentation, integration with scientific knowledge, and, to a lesser extent, capacity-building and formal governance mechanisms.

6.1. Recommendations for IKLK integration

Strengthen the integration of IKLK considerations in environmental governance and natural resource management: Most high-level and sectoral policies lack or include limited IKLK considerations for sustainable resource management and ecosystem conservation. For example, the National Environmental Policy, the National Agriculture Policy, the National Forest Policy or the National Climate Change Response Strategy (2021-2026) acknowledge IKLK, but the integration of IKLK-based approaches into decision-making and conservation efforts is limited. These policies could incorporate explicit provisions for recognizing IKLK in sustainable land and water management, biodiversity conservation, food security, and climate change adaptation. This could be achieved through the systematic documentation of IKLK practices, their integration with scientific knowledge, and the establishment of governance mechanisms to support their formal recognition and systematic application.

Integrating IKLK in regulatory frameworks: Some laws, such as the Forest Act (2002), Environmental Management Act (2004), and Wildlife Conservation Act (2022), acknowledge IKLK but do not include legally binding requirements for its systematic application in environmental planning and natural resource management. The Disaster Management Act (2015) also recognizes customary law and indigenous methods of communication and warning systems. Other laws, such as the Marine Parks and Reserves Act (1994, amended in 2008), the Land Use Planning Act (2007) or the Water Resource Management Act (2009, as amended), could mandate IKLK integration in marine biodiversity conservation, adaptation planning, and water resource management strategies.

Moving beyond documentation to practical implementation: Policies could also promote mechanisms that ensure IKLK is actively applied in biodiversity conservation, climate adaptation, and sustainable natural resource management. The National Climate Change Response Strategy (2021-2026), the National Adaptation Plan of Action and the National Biodiversity Strategy and Action Plan all reference the importance of IKLK-based approaches and aim to support their promotion. Besides the documentation and awareness-raising of such practices, implementation strategies could also support the co-production of IKLK-based knowledge and ensure IKLK holders participate in decision-making processes related to environmental management.

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Expanding IKLK application beyond climate adaptation and biodiversity conservation: IKLK-based approaches could also be considered in water governance practices. For example, future iterations of the National Water Policy could consider traditional practices for watershed management and traditional rainwater harvesting practices. Similarly, the National Blue Economic Policy could integrate measures to promote indigenous fisheries management techniques in coastal and marine conservation efforts.

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