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Strengthening Kenya's Environmental Governance through Inclusive Nature-Based Solutions, Climate Services and Indigenous and Local 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
NbSAP	National Biodiversity Strategy and Action 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 presents key findings from a detailed analysis of Kenya'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 **Kenya 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 from the five target countries were included in the analysis. For Kenya, 53 documents were analysed, consisting of multi-sectoral and sectoral policy frameworks, regulations, strategies, and plans.

2.1. SDG themes addressed by the documents

SDG 15: Life on Land is covered by 77% of the policy documents, followed by SDG 6: Clean Water and Sanitation (74%) and SDG 13: Climate Action (57%). Additionally, SDG 14: Life Below Water is also addressed by 14 policy documents (26%), focusing on marine and coastal ecosystem conservation. SDG 11: Sustainable Cities and Communities, and SDG 7: Affordable and Clean Energy were covered only in 53% and 32% of the documents. Socio-

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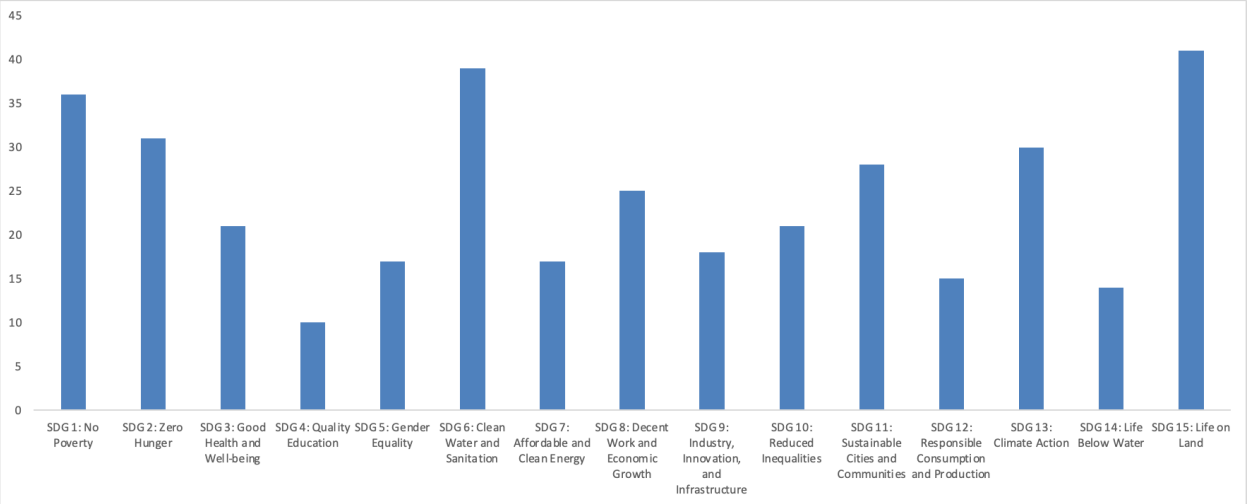
economic objectives such as SDG 2: Zero Hunger, SDG 1: No Poverty, and SDG 8: Decent Work and Economic Growth are featured in 58%, 68%, and 47% of the reviewed policy documents, respectively. Fewer policy documents, 32% and 19%, integrated themes relevant to SDG 5: Gender Equality and SDG 4: Quality Education.

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



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 reviewed policy documents identified a broad range of climate hazards.

- **Drought:** A key climate concern addressed in 64% of the reviewed policies is drought. Concerning water scarcity, policy documents addressed agricultural drought (26%), resulting in insufficient soil moisture to sustain crop growth and reduced yields and hydrological drought (6%), characterised by declines in surface and groundwater levels due to prolonged precipitation deficits.
- **Flooding:** Among the most frequently addressed hazards, flooding is also a predominant concern, with 68% of the reviewed policies incorporating relevant considerations. Specific types of flooding mentioned include flash floods (26%), urban (pluvial) floods (15%), riverine floods (9%) and coastal flooding (8%).
- **Soil erosion and land degradation:** Soil erosion is the third most frequently recognised climate risk, referenced in 45% of the policies. Many policies link these problems to unsustainable land-use practices and deforestation.
- **Coastal erosion:** Several reviewed policies (23%) highlighted coastal erosion as a significant risk, often linked to sea-level rise and human-induced shoreline changes.
- **Other notable hazards** include landslides (28%) and wildfires (19%). Additionally, some policies also noted vulnerabilities to extreme weather events, such as heat waves (21%), storm surges (15%), and strong wind (6%).

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

The following section provides an overview of identified NbS implementation trends, gaps, needs, and integration opportunities across the policy documents studied in Kenya.

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.

Around 75% of the policy documents reviewed for Kenya contained some NbS-related considerations, relevant 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 lack detail.

3.1. High-level, multi-sectoral policy documents and international commitments

NbS approaches were included in the broader national development strategies of all five of the studied African countries. Almost all the reviewed high-level, multi-sectoral policy documents, such as national development plans, spatial planning frameworks, and other long-

[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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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 Kenya is presented below.

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

Name of the policy document	NbS integration	Specific references
Kenya Vision 2030	Medium	Increase forest cover from 3% to 4%. Rehabilitating five water towers as part of the Water Catchment Management initiative.
Kenya Medium Term Plan IV (2023-2027)	Medium-high	National tree growing and restoration campaigns. Forest protection. Fisheries conservation, including the protection of critical habitats. Water towers rehabilitation and conservation. Wildlife conservation. Rangeland management.
National Spatial Plan (2015-2045), Kenya	Medium-high	Appropriate rangeland management practices. Conservation of natural vegetation. Green belts as buffer zones and carbon sinks in urban areas. Regulate developments in the green buffer zones. Enhance tree planting, greenery, and mounds as buffer zones along roads, railways, and airports. Protect and rehabilitate degraded wetlands, riverbanks, and lake shores. Integrated coastal zone and marine resource management plans. Establish forest reserves and afforestation programs.

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

Table 2: Sub-national and local development plans of the studied countries, including NbS approaches and considerations

Name of the policy document	NbS integration	Specific references
Turkana County Integrated Development Plan (2023-2027), Kenya	Medium	Promote restoration of degraded sites and afforestation. Strengthen environmental governance and nature-based value chains. Strengthen wildlife conservation and management. Rangeland management: mapping and reseeding. Rehabilitation and protection of riparian and degraded catchment areas.

3.2. Climate regulations, strategies and plans

The reviewed African countries also explicitly integrated NbS into their **international climate commitment**s under the Paris Agreement. **Kenya's updated first NDC (2021)** included several NbS as priority mitigation measures, such as achieving *tree cover of at least 10% of Kenya's land area and land degradation neutrality, as well as promoting climate-smart agriculture*. The NDC also included ecosystem-based adaptation (EbA) actions across different sectors. [2]

[2] https://unfccc.int/sites/default/files/NDC/2022-06/Kenya%27s%20First%20%20NDC%20%28updated%20version%29.pdf,

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

Name of the policy document	NbS integration	Specific references
National Adaptation Plan (2015-2030), Kenya	Medium-high	Ecosystem-based adaptation in programmes/projects; Forestry adaptation strategy; Tree-planting and conservation initiatives; Rehabilitation of water catchment areas; Access to climate-resilient tree species; Climate-smart agriculture practices.
National Climate Change Action Plan III (2023-2027, Kenya	Medium	Promote Climate-Smart Agriculture and aquaculture; Restore mangroves, coral reefs, and marine ecosystems; Rehabilitate degraded forests and expand forest cover through tree planting and agroforestry;
National Policy on Climate Finance (2016), Kenya	Medium-high	Climate-smart agriculture; Deforestation reduction; Forest and water tower conservation and sustainable management; Afforestation, reforestation; Water management and conservation, rainwater harvesting, improved watershed management.
Climate Change Act (2016, amended in 2023), Kenya	Medium	Programmes and plans to enhance climate resilience of human and ecological systems; Carbon markets policy direction, including sequestration credits for carbon removal through afforestation, reforestation, and nature-based technologies.

At the sub-national level, Kenya's Turkana County Government's County Climate Change Action Plan (2023-2027) aspires to increase forest cover, restore degraded lands and ecosystems, including rangelands and catchment areas, promote agroforestry and climate-smart farming, enhance water resource management through climate-resilience infrastructure and community participation.

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 Kenya.

Table 4: Environmental and climate change policy documents in Kenya, including NbS approaches and considerations

Name of Policy	NbS Integration	Specific references
Ministry of Environment, Climate Change, and Forestry Strategic Plan 2023-2027	High	Conservation, protection, management, and restoration of ecosystems, including wetlands; freshwater resources; forests (urban forests, riverlines and mangroves); Increase forest and tree cover; Restore degraded farmland areas affected by lake and river water intrusion.

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Environmental Management and Coordination Act (revised in 2012, amended in 2015, 2018, 2019, 2022, 2023),	Medium-high	Conservation of mangroves and coral reefs; Management of coastal erosion and wetlands; Regulation of aquatic resource use; Reforestation and biodiversity conservation; Protection of hilltops, forests, and environmentally significant areas.
Environmental Policy (2013)	High	Increase tree cover; Rehabilitate and restore degraded forests, wetlands, riverbanks, and lakeshores; Implement freshwater and wetland management plans; Promote sustainable use of marine, freshwater, and wetland resources; Develop and implement ICZM and IWRM; Combat desertification in ASALs; Conserve biodiversity and regulate bioprospecting; Promote sustainable urban land use and land restoration; Maintain soil fertility and prevent soil erosion and degradation.
Forest Conservation and Management Act (2016, amended in 2018, revised in 2023)	Medium-High	Target of at least 10% tree cover; Public forest conservation; Tourism and recreational forest programs; Management of water catchment areas; County governments to establish green zones and recreational parks; Declaration of nature reserves.
National Strategy for Achieving and Maintaining Over 10% Tree Cover by 2022	High	Conservation of natural forests and rehabilitation of degraded areas; Tree planting campaigns; Mangrove conservation and restoration; Restoration of degraded landscapes in ASALs; Urban forest and green space development.
Kenya Forestry Research Institute Strategic Plan (2022-2027)	High	Enhancing tree production and nursery research; Forest biodiversity conservation; Forest landscape restoration; Mangrove and wetland conservation; Agroforestry promotion; Forest-livestock management; Control of invasive species.
Forest and Landscape Restoration Action Plan (2023-2027)	Medium-high	Put 3.5 million ha of degraded forests and landscapes under restoration to improve biodiversity and resilience; Promote inclusive nature-based livelihoods for communities; Strengthen forest and landscape restoration research, monitoring, evaluation and knowledge.
Kenya Water Policy (2021)	Medium	Integrated and inclusive water resources management.
Water Act (2016, amended in 2017 and 2023)	Medium	Protect and conserve water resources and riparian areas; Declare protected catchment areas.
National Water Resources Strategy (2020-2025)	Medium	Protect and restore freshwater ecosystems; Manage water use in catchments and aquifers; Sustainable management of lakes and basins.
National Water Master Plan (2015-2030), Kenya	Medium	Ensure water allocation meets environmental needs; Implement watershed conservation; Restore forest cover in catchment areas; Minimise flood and drought impacts.
The National Wildlife Conservation and Management Policy (2017)	Medium	Prevent threats from development in wildlife habitats; Strengthen protected areas and wildlife corridors; Establish marine protected areas; Implement disaster action plans for coastal and marine areas.
Kenya National Biodiversity Strategy and Action Plan (2019)	High	Mainstream biodiversity conservation across sectors; Reduce pressures on biodiversity; Increase protected areas to 17% of land and 10% of coastal areas; Restore at least 30% of degraded ecosystems.
National Wildlife Strategy (2018-2030), Kenya	Medium-High	Prioritise ecosystem and species protection; Improve integrated land use planning; Restore and protect wildlife habitats and connectivity; Enhance climate resilience of key ecosystems.
Agriculture Farm Forestry Rules, 2009, Kenya	Medium	Maintain 10% farm forestry cover on agricultural land; Conserve water, soil, and biodiversity; Protect riparian and wetland areas; Restrict eucalyptus in wetlands; Identify and restore degraded land.

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Kenya Climate Smart Agriculture Strategy (2017-2026)	Medium-High	Enhance the resilience of agricultural systems; Sustainable natural resource management; Water harvesting; Restore degraded soils; Agroforestry to reduce deforestation and emissions.

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 in Kenya, the following trends can be identified:

- **Ecosystems covered:** The policy documents that were studied placed a more significant focus on freshwater resources (70%), forests (60%), coastal and marine ecosystems (34%), and agricultural areas (32%). Urban areas and grasslands were considered in fewer documents.
- **Identified trends in NbS approaches and actions:** The policy documents have integrated multiple NbS actions, reforestation and sustainable forest management activities (57%), freshwater resource protection (47%), and anti-desertification, land degradation and soil erosion (34%). Measures related to coastal and marine conservation (28%) and urban green and blue infrastructure development (15%) were less frequently included.
- **Level of NbS integration**: 30% of policies integrated NbS approaches more comprehensively. Another 43% integrated NbS at a medium level by including some relevant measures, mainly focusing on specific ecosystems and activities.

3.5. Recommendations for NbS integration

NbS integration in high-level and multi-sectoral national policies: High-level policy documents in Kenya recognise the importance of sustainable natural resource management, but NbS approaches could be integrated more thoroughly as a core cross-sectoral strategy. For instance, documents such as the Kenya Vision 2030 and the Medium Term Plan IV (2023-2027) could systematically embed NbS into broader development planning, particularly in infrastructure and urban expansion. The National Land Policy (2009) also includes some relevant measures to protect natural ecosystems, but these measures could be expanded with approaches that focus on active management and restoration of ecosystems. The National Policy on Gender and Development (2019) could also integrate NbS, for example, to support community-driven restoration and biodiversity conservation efforts that involve women and marginalised groups. At the sub-national level, the Turkana County Integrated Development Plan (2023-2027) includes some NbS strategies, but considerations for sectoral integration in agriculture, water management, and infrastructure development remain limited.

Strengthening NbS and EbA integration in key environmental and sectoral policy documents: Many of Kenya's environmental and sectoral policies mention elements of NbS, but if the NbS concept is integrated more systematically, it could increase their potential for multiple impact delivery. The National Biodiversity Strategy and Action Plan (NbSAP) already integrates NbS thoroughly, and it could serve as a basis for the integration of NbS into other policy documents. For example, the National Environmental Policy (2013), which already

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considers relevant measures across ecosystems and action areas, could be updated to consider the urban and the agricultural angle. The National Wildlife Strategy 2030 emphasises conservation but lacks EbA measures, such as rewilding projects or the restoration of ecological corridors. The National Climate Change Action Plan III (2023-2027) incorporates NbS but lacks sufficient consideration for certain ecosystems, particularly urban and coastal areas. The National Adaptation Plan (2015-2030) also incorporates relevant measures, but the NbS concept is not integrated fully across all sectors.

Strengthening the legislative framework for NbS: Kenya has a robust legislative framework for environmental management, but many of its key laws do not explicitly incorporate NbS. The Environmental Management and Coordination Act (1999, as amended) could establish NbS as a primary approach to environmental protection. The Land Act (2012, as amended), which already includes provisions for the conservation of ecologically sensitive areas, could require NbS approaches as ecosystem management and restoration strategies. The Water Act (2016 as amended), which outlines conservation measures for water resources, could also promote NbS approaches for sustainable watershed management and wetland restoration. At the sub-national level, the Turkana County Emergency and Disaster Management Act (2016) could integrate NbS approaches to promote disaster preparedness and resilience.

Linking NbS to climate and DRR/DRM: NbS should be positioned in policies as a central strategy for resilience-building. For instance, the Climate Change Act (2016, amended in 2023) mentions ecosystem resilience and recognises NbS explicitly, but its application is mainly limited to carbon sequestration activities and does not include specific requirements for incorporating NbS into climate adaptation and mitigation strategies. The Forest and Landscape Restoration Action Plan (2023-2027), which prioritises ecosystem restoration, could explicitly link these efforts to climate resilience and climate-related DRR/DRM benefits. The National Disaster Risk Management Policy (2017) could incorporate the use of natural infrastructures, such as wetlands, mangroves, and forests, to help mitigate flood and drought risks. Similarly, at the sub-national level, the Turkana County Emergency and Disaster Management Act (2016) also lacks provisions for NbS as potential solutions to mitigate climate-related hazards, such as droughts and flash floods.

Integrating NbS into urban planning: Kenya's urban planning policies could integrate NbS to enhance climate resilience and human well-being in cities. The Urban Areas and Cities Act (2011, as amended) could incorporate urban forests, wetlands, or green infrastructure to address urban heat islands and stormwater management. The Physical and Land Use Planning Act (2019) mentions nature conservation, but it could require the systematic integration of NbS into urban development plans. The National Spatial Plan (2015-2045) includes broad considerations for nature-based approaches, but it should be expanded with concrete measures to support urban implementation of green and blue infrastructure.

Introducing financing strategies and mechanisms for NbS: Policies could facilitate the financing for large-scale NbS investments by establishing dedicated funding streams, introducing regulations for green loans, bonds and payments for ecosystem services to support NbS, and promoting public-private partnerships and blended financing. The National Policy on Climate Finance includes provisions to fund ecosystem restoration and conservation

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measures, but it could define a dedicated funding stream for NbS or could require nature-proofing all climate investments and projects. The Climate Change, Carbon Markets Regulations (2024) also provide opportunities for financing NbS, but currently, it is primarily focusing on forest restoration and does not include wetlands, coastal and marine ecosystems.

The Kenya Investment Authority Strategic Plan (2023-2027), which promotes sustainable investments, could also include requirements for obligatory NbS measures in projects.

Monitoring frameworks: Establishing NbS-specific indicators and reporting mechanisms can help track progress, assess multiple co-benefits, and support stakeholder involvement and evidence-based policy adjustments. Research and data collection can inform evidence-based decision-making; for example, a 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 be critical in supporting climate risk management, adaptation planning and evidence-based decision-making in various sectors, including DRR/DRM, agriculture and food security, water management, health and energy. [3]

The analysis found that around 60% of the reviewed policy documents in Kenya include 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 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.

[3] **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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4.1. High-level, multi-sectoral policies, strategies and plans

In Kenya's high-level governance and multi-sectoral frameworks, the integration of climate services is presented below.

Table 5: High-level and cross-sectoral policy documents in Kenya, including climate services

Name of the policy document	Climate services integration	Specific references
Kenya Vision 2030	Medium	Enhance disaster preparedness in disaster-prone areas; Improve capacity for adaptation to climate change; Comprehensively map land use patterns; Rehabilitate hydro-meteorological data gathering network.
Kenya Medium Term Plan IV (MTP IV), 2023-2027	High	Upgrade 350 water monitoring stations; Establish five national water quality monitoring stations; Map groundwater in five counties; Implement early warning systems for drought, food security, and landslides; Modernise meteorological services; Strengthen disaster management capacity; Enhance ocean governance research and policy.
National Spatial Plan (2015-2045), Kenya	Medium	Enhance disaster preparedness in disaster-prone areas; Improve capacity for adaptation to climate change; Comprehensively map land use patterns; Rehabilitate hydro-meteorological data gathering network.

At the sub-national level, the Integrated Development Plan, 2023-2027 of Turkana County, aims to develop climate change profiles and centralised databases, conduct climate risk assessments, improve early warning systems with real-time alerts via radios and phones, and construct new weather stations.

4.2. Climate regulations, strategies and plans

Kenya's **updated First Nationally Determined Contribution (2020)** set out to develop and apply climate risk management tools, strengthen early warning systems and climate information services, enhance adaptation monitoring and evaluation (MEL) and improve climate-proofing of energy, road, water, sanitation, and irrigation infrastructure; Roll out early action protocols for forecast-based financing.

The majority of the climate policy documents also integrate climate services. Identified goals and measures mainly focused on climate data and monitoring and early warning systems and, in a few cases, also connected climate services to improving decision-making.

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Table 6: Climate change policy documents in Kenya incorporating climate services

Name of the policy document	Climate services integration	Specific references
Climate Change Act (2016, amended in 2023) Kenya	Medium-high	Support climate research, training, and capacity building; Create a national climate knowledge and information management centre.
National Adaptation Plan (2015-2030) Kenya	Medium-high	Strengthen early warning systems; Integrate indigenous knowledge, and improve climate vulnerability assessments.
National Climate Change Action Plan III (2023-2027), Kenya	Medium-high	Develop and operationalise a national multi-hazard early warning system and knowledge management system; Provide tailored climate information services; Build stakeholder capacity in climate risk management in agro-food systems; and develop flood early warning systems in high-risk areas.
National Policy on Climate Finance (2016) Kenya	Medium-high	Establish and maintain climate information centres for agriculture and integrate climate data into water modelling and forecasting.
Kenya National Framework for Climate Services (2023)	High	Create effective coordination for climate services. Improve access to climate services and early warning. Enhance observation and monitoring networks. Strengthen interaction between users, providers, and researchers. Improve research, modelling, and prediction capacity. Enhance the generation and use of climate information and products. Promote partnerships and collaborations in NFCS.
Kenya Meteorological Department Strategic Plan, 2018-2022	High	Establish county-level weather and climate services infrastructure. Improve data management and archival. Enhance dissemination for disaster preparedness. Expand and automate data collection. Improve telecommunication for rapid exchange. Conduct weather modification research. Enhance human capacity in meteorology. Strengthen community participation. Establish partnerships for capacity building.
The Meteorology Bill (2023), Kenya	High	Develop and operate a national climate services framework; Weather forecasts, alerts, and advisories through a Multi-Hazard Early Warning System; Conduct research in meteorology to improve services and climate updates; Maintain meteorological observation networks and integrated information systems aligned with WMO standards.

In addition to national policy documents, some sub-national climate change policies also included provisions for the application of climate services. Kenya's County Government's Climate Change Action Plan (2023-2027) set out to advance climate information services and access to climate data by developing climate information systems, establishing infrastructure for data collection and improving early warning systems.

4.3. Environmental policies, strategies and plans

Relevant activities are also included in some of the sectoral policies, strategies, and plans that focus on water management and agriculture.

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Table 7: Environmental and climate change policy documents in Kenya incorporating Climate Services

Name of the policy document	Climate services integration	Specific references
Ministry of Environment, Climate Change, and Forestry Strategic Plan 2023-2027, Kenya	Medium-high	Policy and legislation development for meteorological services; Improve national multi-hazard early warning system; Upscale flood early warning systems; Strengthen meteorological service capacities; and Conduct national climate vulnerability and risk assessments.
Kenya Water Policy (2021)	Medium	Integrate climate considerations into water sector planning and decision-making, incorporate disaster risk reduction to protect investments, support sustainable water resource management
National Water Resources Strategy (2020-2025), Kenya	Medium-high	Enhance water resource mapping; Strengthen monitoring and assessment systems; Develop early warning and response strategies for extreme weather events; Integrate climate change considerations into water management.
National Water Harvesting and Storage Strategy (2020–2025), Kenya	Medium	Develop flood and stormwater mitigation plans; Ensure climate change mainstreaming in water security measures; Enhance information-sharing platforms.
National Drought Management Authority Strategic Plan (2023-2027), Kenya	High	Enhance drought early warning systems; Strengthen predictive models; Improve data collection and analysis; Conduct biannual food security assessments.
Kenya Climate Smart Agriculture Strategy (2017-2026)	Medium-high	Modernisation of meteorological infrastructure. Integration of scientific and indigenous technical knowledge in weather forecasting; Enhance human capacity in weather data collection and analysis; Early warning information on seasonal weather patterns.
National Disaster Risk Management Policy (2017), Kenya	Medium-high	Develop multi-hazard disaster risk surveys and national risk assessments, including climate change scenarios; Develop and strengthen people-centred, multi-hazard and multi-sectoral forecasts, early warning systems, and disaster communication technologies.
Turkana County Strategic Environment Action Plan, 2020, Kenya	Medium-high	Disseminate early warning data for disaster preparedness; Use weather data for farming decisions; Conduct water abstraction surveys and develop water allocation plans; Strengthen drought preparedness and contingency planning; Establish early warning systems for floods and droughts.

4.4. Identified trends in climate services integration

Our analysis identified the following trends concerning climate services in the reviewed policy documents.

- **Climate services integrated**: Climate services information systems, early warning systems, and climate research and modelling are the most frequently included across the policies (51% and 45%). The policies also place more emphasis on climate observations and monitoring (42%). Decision support and capacity- and resilience-building activities are somewhat less frequently mentioned (38% and 34%).
- **Sectors addressed by climate services:** Disaster risk reduction (36%) and water (32%) are the most targeted sectors, followed by agriculture and food security (23%). Overall, the sectoral focus is less emphasised, and many documents provide general provisions only.

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- **Level of integration:** One-third of the policies demonstrate a higher level of integration of climate services. A further 25% exhibit a moderate level of integration. Approximately 45% do not consider climate services.

4.5. Recommendations for climate services integration

Enhance the integration of climate services into national policy frameworks: Kenya's National Framework for Climate Services (2023) provides a strong foundation for cross-sectoral integration and national coordination mechanisms of climate services. To further strengthen the use of climate information in planning and decision-making, Kenya could systematically integrate climate services across its national policies. High-level, multi-sectoral policy documents, such as the Medium Term Development Plan IV, could promote integration by linking climate services to water resource monitoring, DRR/DRM, and coastal protection. The National Climate Change Action Plan III (2023-2027) is also set to establish and operationalise an integrated multi-hazard early warning, information and knowledge management system at the national and county levels. However, the National Adaptation Plan (2015-2030) could further strengthen the role of climate services across sectoral adaptation strategies. Furthermore, the National Disaster Risk Management Policy (2017) could also establish linkages between climate services and disaster preparedness. At the sub-national level, the Turkana County Emergency and Disaster Management Act (2016) could require the use of climate services to improve early warning systems and disaster resilience.

Improve climate data availability and accessibility: While the National Framework for Climate Services (2023) provides the framework for ensuring access to climate data, environmental policies and regulations have a high potential to support practical implementation in different sectors. For instance, the Environmental Policy (2013) only provisions environmental monitoring and could be extended with requirements for climate data collection. The Water Act (2016, as amended) and the National Water Policy (2021) could mandate the integration of climate aspects into water-related data collection to improve water resource management. The Land Act (2012, as amended) and the National Land Policy (2009) could support the development of climate risk databases and the integration of climate-risk assessments in land use plans.

Expand early warning systems: Early warning systems must be integrated into various sectors, including agriculture, water management, and infrastructure planning. The National Disaster Risk Management Policy (2017) provides the basis for integration as it requires the development of people-centred multi-hazard, multi-sectoral forecasting and early warning systems. However, these considerations must be systematically integrated into sectoral policies as well. For instance, the National Water Master Plan (2015-2030) could integrate climate projections into flood and drought risk planning, while the National Water Harvesting and Storage Strategy (2020–2025) could also provision the use of early warning systems to support water security planning and infrastructure development. At the sub-national level, the

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Turkana County Government's Climate Change Action Plan (2023-2027) could develop localised early warning systems in various sectors.

5. Social and gender inclusion

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. [4]

The majority of the policy documents studied in Kenya incorporate social inclusion considerations, although many of the reviewed documents do not cover all relevant needs.

Regarding **gender mainstreaming**, around 35% 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.

Many reviewed documents that integrated gender-responsive measures were cross-sectoral policies, strategies and plans, including the **Kenya Vision 2030 and the Fourth Medium-term Plan (2023-2027)**. Integration is also relatively strong in climate policies but more limited in sectoral environmental policy documents. The table below provides an overview of identified climate and environmental policies with more comprehensive gender inclusion measures in Kenya.

Table 8: Gender-responsive approaches in the climate and environmental policy documents of Kenya

Title of the policy	Specific references
National Adaptation Plan (2015-2030), Kenya	Strengthen the adaptive capacity of vulnerable groups (women, orphans, vulnerable children, elderly, and persons with disabilities).
National Climate Change Action Plan (2023-2027), Kenya	At least 30% of beneficiaries in social protection mechanisms should be women. Strengthen and monitor gender-responsive humanitarian hubs, displacement centres, and evacuation centres.
Climate Change Act (2016, amended in 2023), Kenya	Mainstream intergenerational and gender equity in all aspects of climate change responses, including in the allocation of effort, costs, and benefits.
Climate Change (Carbon Markets) Regulations (2024), Kenya	Support projects to include educational, technical training, and employment opportunities for women and marginalised groups.

[4] 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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Turkana County Climate Change Action Plan (2023-2027), Kenya	Participatory processes involving women, youth, ethnic minorities, people living with disabilities, and marginalised groups. Gender-sensitive early warnings and alerts for extreme weather events.
Kenya Water Policy (2021)	Mechanisms and resources to enhance gender considerations in water sector planning, decision-making and implementation.
Land Act, (2012), Kenya	Elimination of gender discrimination in law, customs and practices related to land and property in land.
National Water Resources Strategy (2020-2025), Kenya	Enhance gender equity in the management, control and use of water resources. Gender-sensitive monitoring and evaluation of resources.
National Water Harvesting and Storage Strategy (2020–2025), Kenya	Enhance the mainstreaming of gender considerations in the water sector towards progressive attainment of gender equality.
Forest and Landscape Restoration Action Plan (2023-2027), Kenya	Promote and develop gender-inclusive green value chains. Identify structural barriers to equitable access to restoration benefits.
Kenya Climate Smart Agriculture Strategy (2017–2026)	Awareness-raising, capacity building, income generating activities to increase the capacity of women, youth, and vulnerable groups to participate in climate-smart agriculture activities

5.1. Recommendations for improving the inclusion of gender considerations

Strengthen gender mainstreaming in environmental and climate policies: Many policies recognise the importance of promoting gender equity and inclusion, but stronger integration across environmental and climate policies is needed. For instance, key environmental policies, such as the National Environmental Policy (2013), the National Spatial Plan (2015-2045), and the National Biodiversity Strategy and Action Plan, contain limited gender inclusion measures.

Gender-sensitive climate services and DRR/DRM: Climate services and disaster risk reduction strategies should also take gender inclusion into consideration, but gaps remain concerning systematic implementation approaches. For instance, the National Disaster Risk Management Policy (2017) and the National Framework for Climate Services (2023) identify gender inclusion as core values and guiding principles, but they do not include tailored strategies for considering the needs of women and marginalised groups. Similarly, the Turkana County Climate Change Action Plan (2023-2027) and the Turkana County Emergency and Disaster Management Act (2016) could integrate gender-responsive early warning systems.

Link economic opportunities and livelihoods to NbS approaches: Policies could promote green job opportunities for women and vulnerable groups in agriculture, forest and nature conservation. The Climate Smart Agriculture Strategy (2017-2026) provides a good example, and similarly, NbS approaches can also be linked to gender inclusion in other policy documents. Examples include the National Adaptation Plan (2015-2030) and National Climate Change Action Plan III (2023-2027), which both include gender inclusion measures but consider their linkages to climate-resilient livelihood opportunities to a limited extent. Other strategies, such as the NbSAP or the Ministry of Environment, Climate Change, and Forestry Strategic Plan 2023-2027 and the Forest and Landscape Restoration Action Plan 2023-2027, could also be expanded on how women and other vulnerable groups could support sustainable natural resource management and biodiversity conservation via economic opportunities.

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Expanding the national gender-environment policy framework and supporting subnational implementation: The National Policy on Gender and Development (2019) includes some provisions that link gender equality and environmental sustainability. These considerations should be mainstreamed into sectoral as well as sub-national policies, such as the Turkana County Strategic Environment Action Plan, Turkana County Water and Sewerage Services Sector Policy or the Turkana County Government County Climate Change Action Plan.

6. Indigenous knowledge

Around 50% of reviewed Kenyan 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.

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 implementation mechanisms for IKLK in environmental governance and natural resource management: The Constitution of Kenya recognises the importance of protecting indigenous knowledge concerning biodiversity and the genetic resources of the communities and the National Environmental Policy (2013), the National Land Policy (2009), and the National Disaster Risk Management Policy (2017) include provision to enhance integration of traditional knowledge in environmental and land-use planning and management. However, many strategies and plans lack specific implementation mechanisms beyond the documentation of IKLK. For example, policies such as the NbSAP, the Ministry of Environment, Climate Change, and Forestry Strategic Plan (2023-2027), and the Forest and Landscape Restoration Plan (2023-2027) could introduce formal integration mechanisms for IKLK and require the incorporation of specific practices in land management, nature protection and restoration activities.

Integrating IKLK in regulatory frameworks: the analysed environmental regulations, such as the Environmental Management and Coordination Act (1999, as amended) and the Climate Change Act (2016, amended in 2023) recognise the importance of various knowledge systems but lack specific, enforceable mechanisms to ensure that IKLK-based solutions are applied in land use, environmental management and nature conservation. Other regulations, such as the Land Act (2012, as amended), the Water Act (2016, as amended), the Water Resources Regulations 2021, or the Wildlife Conservation and Management Act (2013, as amended) do not consider IKLK-based approaches. Amendments could establish legally binding requirements for IKLK integration in biodiversity conservation, climate adaptation, and land management strategies.

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Expanding IKLK application beyond climate adaptation and biodiversity conservation: IKLK considerations are missing from the National Water Policy (2021) as well as from water resources regulations both at the national and the sub-national level in Turkana County. Future iterations of these policy documents could consider the promotion of IKLK practices for watershed management and rainwater harvesting practices. Similarly, the Oceans and Fisheries Policy (2008) could integrate indigenous fisheries management techniques into coastal and marine conservation efforts.

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