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Resilience in the face of ecological challenges: Strategies for integrating environmental considerations into social policy planning in Africa

Waidi Gbenro Adebayo^{1,2,3} 

¹Department of Philosophy, Politics and Economics, Witten/Herdecke University, Witten, Germany

²DePECOS Institutions and Development Research Centre (DIaDeRC), Ota, Nigeria

³Centre for Economic Policy and Development Research (CEPDeR), Covenant University, Ota, Nigeria

Correspondence

Waidi Gbenro Adebayo, Department of Philosophy, Politics and Economics, Witten/Herdecke University, Witten, Germany.
Email: adebayo4peace@gmail.com; waidi.adebayo@uni-wh.de

Abstract

Africa faces severe ecological crises, such as climate change, resource depletion, and biodiversity loss, undermining sustainable development efforts and exacerbating poverty and hunger. Integrating environmental concerns into social policy planning could help build community resilience and support sustainable development. This study employed policy analysis and stakeholder engagement to identify key environmental issues, policy gaps, and strategies for integrating environmental considerations into social policies across various sectors in Africa. The study found a significant lack of integration of environmental concerns into social policy across areas like disaster management, agriculture, urban planning, healthcare access, and infrastructure development policies. As a percentage of respondents, the top environmental issues were flooding (32%), drought/desertification (13%), and food security/agriculture (11%), with farmers (35.4%) and women (21.7%) being the most vulnerable to climate change. Most community stakeholders (87.5%) emphasized the importance of integrating environmental considerations into social policy, with 56.25% rating it a high priority. They underscored the need for more locally driven planning, ecological monitoring, land restoration, diversified livelihoods, and climate change adaptation support through social policies to enhance environmental sustainability. This study's novelty lies in its comprehensive approach to understanding and addressing the complex interplay between environmental challenges and social policy planning in Africa. The findings emphasize the urgent need for policymakers to develop cross-sectoral national and local policies that use participatory processes to prioritize environmental sustainability, adaptation, community empowerment, and alignment with sustainable development goals while being responsive to continuing environmental uncertainty and change.

KEYWORDS

adaptive social policies, Africa, climate change mitigation, ecological crises, policy analysis, resilience, stakeholder engagement, sustainable development

1 | INTRODUCTION

The sustainable development goals (SDGs) delineate a global framework aimed at fostering sustainability and addressing challenges such as poverty, inequality, and environmental degradation (United Nations, 2015). Among these goals, Goal 13 emphasizes the importance of climate action, underlining the urgency of mitigating and adapting to the devastating impacts of climate change. However, achieving environmental sustainability in Africa requires a nuanced understanding of the continents' distinct ecological challenges and their intersection with social policy plans.

African countries are facing severe and escalating ecological crises resulting from climate change, biodiversity loss, deforestation, land degradation, and resource depletion (IPCC, 2022; UNEP, 2023). The locust infestation in East Africa (FAO, 2021; Salih et al., 2020), the drought-instigated famine in Uganda, resulting in 2465 deaths and droughts in Burkina Faso, the Democratic Republic of the Congo, Ethiopia, Niger, Nigeria, and Sudan negatively affecting 88.9 million people in 2022 (CRED, 2022), increasing desertification driven by wind erosion in the Sahel, as evident in Northern Nigeria (Abdullahi, 2024), are examples of climate change-driven occurrences on the continent. Climate change and other environmental pressures threaten the stability of social and ecological systems across Africa (IPCC, 2022; Morton, 2017). Unmitigated climate change is expected to result in intensified droughts, biodiversity loss, reduced food security, and increased water scarcity across African countries (Baptista et al., 2022; Boko et al., 2008). These environmental stressors undermine developmental gains and hinder the ability of vulnerable communities to adapt to change (Aldunce et al., 2014). African governments have cited climate change as their most pressing threat, while environmental objectives remain largely sidelined in policy planning (Conway, 2015).

Although Africa currently accounts for 17% of the world's population, its historical cumulative CO₂ emissions over time are negligible, accounting for only 3% of the global emissions. Nonetheless, the continent faces a disproportionate effect of climate change and extreme weather incidents, with devastating effects on its people and grievous outcomes across the social, economic, and environmental realms (AfDB, 2022). The lack of progress in national and global environmental agreements has hindered resilience building in Africa, particularly in the face of climate change-driven impacts (Ifejika, 2010; Ogunseitan, 2003). This is further compounded by the challenges of implementing global urban resilience goals, with a recommendation for community-driven slum upgrading as a strategy (Dobson, 2017). The capacity and constraints of African cities in building resilient infrastructure have also been highlighted, with corruption and nonparticipatory approaches identified as key challenges (Chirisa et al., 2016). These studies highlight the need for more effective and inclusive approaches to environmental and urban resilience in Africa. Consequently, scholars have called for an increased focus on evidence-based policymaking that incorporates environmental sustainability objectives (Howlett, 2014; Tangney, 2022). Such policy approaches remain underexplored but have significant potential to enhance the

ability of African countries to respond to ecological changes (Wellstead et al., 2017).

Social policies offer a crucial entry point for African governments to improve sustainability and build adaptive capacities across vulnerable communities (Keskitalo et al., 2016). However, research gaps remain, including a lack of scholarship on the best policy practices in Africa (Conway & Mustelin, 2014). Empirical assessments of policy impacts and resilience outcomes are limited (Aldunce et al., 2014). These environmental challenges threaten the livelihood, food security, and resilience of local communities (Morton, 2017). Building resilience through social policies that proactively address environmental considerations is critical for vulnerable countries (Aldunce et al., 2016). This study addresses current research gaps by using policy analysis and stakeholder engagement to explore strategies for the better integration of environmental concerns into social policy planning. This study contributes to applied guidelines for enhancing policy and theoretical insights into the drivers of resilience in inherently vulnerable systems during climate disruption.

This study argues that integrating environmental concerns into social policy planning can help to build community resilience, support sustainable development in the face of ecological crises, and unlock societal benefits. Adaptive and sustainable policies focusing on environmental crisis mitigation, capacity building, and community empowerment are required. This study utilized policy analysis, including a review of current social policies across some African countries, to identify the ecological challenges and gaps in addressing these crises through national policies. Consultations were also conducted with policymakers, activists, researchers, and community stakeholders across several African countries using a questionnaire to explore resilience needs at the ground level and gather recommendations for more adaptive policies.

The work centers on the following research questions: (1) What are the key environmental challenges posed to African communities by climate change and related crises? (2) Where and how can social policies address environmental impacts and build community resilience? (3) What practical recommendations and best practices do policymakers seek to improve the integration of environmental objectives into policy planning?

This study contributes to SDGs by addressing the critical need to integrate environmental considerations into social policy planning in Africa. By doing so, it seeks to promote resilience in the face of ecological challenges and to advance sustainable development efforts across the continent. Specifically, this study focused on identifying strategies for effectively integrating environmental concerns into various aspects of social policy, thereby fostering adaptive capacity and enhancing community well-being. Integrating environmental concerns into social policy planning can help to build community resilience, support sustainable development in the face of ecological crises, and unlock societal benefits. These include reducing vulnerability to climate-related disasters, enhancing food security through the adoption of sustainable agricultural practices, fostering sustainable urban development for healthier cities, strengthening livelihoods, particularly for marginalized communities, and empowering communities through

inclusive policymaking processes. Overall, integrating environmental considerations into social policies can create safer, healthier, and more prosperous societies in Africa. The success of these policies can be evaluated using indicators such as community adaptive capacity, resource availability, disaster resilience, sustainable livelihoods, and equitable access to social services.

The remainder of this article is organized as follows: Section 2 is the literature review, Section 3 contains the methodology, Section 4 contains the results and discussion, Section 5 contains the proposed policy guidelines, and Section 6 concludes the paper.

2 | LITERATURE REVIEW

2.1 | Impacts of ecological crises on African social-ecological systems

Social-ecological systems (SESs) in Africa face a multitude of challenges owing to escalating ecological crises. These systems, in which human societies and the environment are intricately linked (Colding & Barthel, 2019), are particularly vulnerable owing to the confluence of ecological factors. The top ecological challenges are (1) climate change, marked by rising temperatures, erratic rainfall patterns, and extreme weather events, such as droughts and floods, which significantly impact African ecosystem output (Serdeczny et al., 2017). (2) Land degradation caused by overgrazing, deforestation, and unsustainable agricultural practices leads to a decline in soil fertility and increased desertification (UNEP-CBD, 2018). (3) Biodiversity loss is driven by habitat destruction, pollution, and climate change, resulting in a decline in plant and animal species and jeopardizing ecosystem health and services (UNEP-WCMC, 2016). (4) Water scarcity exacerbated by droughts, pollution, and rising demand strains water resources and affects human health, agriculture, and hydropower generation (Ingrao et al., 2023).

This subsection explores the dimensions of these ecological threats and how they disrupt social-ecological systems, thereby affecting livelihoods, cultures, and overall well-being.

2.1.1 | Climate change

Climate change is one of the most pressing ecological challenges facing the continent, with rising temperatures, changing rainfall patterns, and frequent extreme weather events posing challenges to the resilience of social-ecological systems (Niang et al., 2014; WMO, 2023). Climate change-induced disasters are on the rise in the continent, with reports of significant flooding and landslides in the Democratic Republic of the DRC as a result of heavy rainfall in the South Kivu region in May 2023. The exact number of deaths remains unknown and is believed to be 2970, with 470 deaths verified and a large number missing. In October 2023, floods in northeastern Nigeria caused 275 deaths. Tropical Storm Freddy caused 1209 fatalities in Malawi and impacted 2.3 million people. Also, flooding affected 2.9 million

people in Tanzania and 2.5 million people in Somalia (CRED, 2024). There was also a locust invasion in East Africa that began in 2019 (FAO, 2021; Salih et al., 2020). These swarms were the most severe infestations in Ethiopia and Somalia in the past 25 years and in Kenya in the past 70 years (FAO, 2021; World Bank, 2020). Famines induced by drought have resulted in thousands of deaths in Uganda. Furthermore, droughts in Burkina Faso, the Democratic Republic of the Congo, Ethiopia, Niger, Nigeria, and Sudan negatively affect 88.9 million people in 2022 (CRED, 2022).

Decadal temperature assessments suggest an increasing warming trend over Africa during the last 50–100 years, which is consistent with human activity-induced environmental change. By the end of the century, Africa's mean annual temperature rise relative to the late 20th century may have reached 2°C, with the possibility that African land temperatures would climb faster than the world average, especially in dry regions (Niang et al., 2014). Climate change is projected to cause declines in crop yields, particularly those of maize, wheat, sorghum, and millet, which constitute major staples (Serdeczny et al., 2017) and cocoa, the continent's major export cash crop (Jamal et al., 2021). Crop production is predicted to decrease across continents because of the higher temperatures and shorter growing seasons. Changes in local climatic conditions may alter locations suitable for crop cultivation. With global warming of 3°C, most maize, millet, and sorghum growing areas in Africa may become unsuitable for current cultivars (Schaeffer et al., 2013). However, the cassava crop may be able to tolerate rising temperatures in the future, providing African alternatives for adaptation while other key food staples struggle (Jarvis et al., 2012).

2.1.2 | Land degradation

Land degradation is connected to over 80% of the SDGs, including life on land, clean water, responsible consumption, climate change mitigation, hunger and poverty, sustainable cities, and clean energy (Scholes, 2018). Land degradation is a major driver of habitat loss, pollution, and climate change (UNEP-CBD, 2018). The fundamental basis of communities and economies is robust and efficient land resources, including soil, water, and biodiversity, which are both healthy and productive. Land consists of several biophysical elements, including soil, water, plants, and animals, which are found within a landscape formed by its geomorphology and are influenced by a climate that is frequently altered by human activities (Vlek et al., 2017). Approximately USD 44 trillion in economic activity, which accounts for almost 50% of global GDP, depends to a significant extent on natural capital (UNCCD, 1994, 2022). Land serves several functions, including providing natural ecosystems and supporting activities such as agriculture, forestry, pastoralism, infrastructural development, mining, and tourism. In addition to the aforementioned economic benefits, land plays a crucial role in providing many ecological services, including nutrient cycling, carbon sequestration, and water and air purification. Furthermore, the land satisfies social and spiritual requirements (Vlek et al., 2017). According to Scholes (2018), there is a link between land

degradation, poverty, well-being, conflict, and migration. The overconsumption of natural commodities drives land degradation due to increased wealth and population growth. Two in five persons were harmed by human-induced land deterioration, which lowered global GDP by 10% and impacted 75% of Earth's land cover. Forests, rangelands, croplands, wetlands, and urban ecosystems have been affected worldwide.

2.1.3 | Biodiversity loss

Africa is a habitat for a vast array of animals, plants, and marine species that provide critical ecological functions, drive livelihoods and economic activities on the continent, and act as a safeguard against climate change (World Bank, 2019b). The interconnectivity of social and ecological systems in Africa faces severe threats from climate change, biodiversity decline, land degradation, and resource scarcity (IPCC, 2022; UNEP, 2016). The degradation of ecosystems significantly reduces their capacity to provide essential services, such as water purification, flood regulation, and pollination, which are crucial for maintaining environmental balance and supporting human life (Adla et al., 2022; Millennium Ecosystem Assessment, 2005). Additionally, a decline in species diversity disrupts food webs, nutrient cycling, and overall ecosystem resilience, leading to weakened natural systems that are less able to recover from environmental stress (Benton et al., 2021; Wojcik et al., 2021). Degraded ecosystems also become more susceptible to further environmental damage, creating a vicious cycle of degradation and vulnerability that exacerbates the initial ecological crises (Wojcik et al., 2021). Biodiversity loss of biodiversity undermines cultural values and traditional knowledge systems that are closely tied to the natural environment (Isbell et al., 2017). Estimates suggest that Africa could experience a decline of over 50% in its bird and mammal species by the year 2100, with a substantial loss of plant species and, in addition, a 20%–30% decline in lake production (World Bank, 2019a, 2019b).

Drought, desertification, and increased aridity will further challenge freshwater access to over 250 million Africans by 2030 (African Union, 2022). Agricultural capacity declines are coupled with depleted fisheries, water scarcity, and the disruption of ecosystem services many African communities depend on (FAO, 2017). Decreased fishery productivity due to lake and ocean warming also threatens livelihoods and the food supply chain (Lam et al., 2020). In Africa, drylands cover approximately 43% of the land area, 50% of which people live, 70% of the current farmlands, 66% of grain production, and 80% of the current places where farm animals are reared. African drylands are hotspots for natural disasters, disputes, clashes, and poverty (Cervigni & Morris, 2015, p. 4). Communities such as Toshia town in the Yunusari local government area and Tulo-Tulo in the Yusufari local government area of Yobe State on the fringes of the Sahara Desert in Nigeria and close to the Nigerian-Niger border are losing farmland and homes to the Sahara Desert. This has resulted in a scarcity of farmland, low yields, drought, scarcity of grasses, animal loss, and reduced milk production from cows and goats (Abdullahi, 2024).

2.1.4 | Water scarcity

Climate change, unsustainable infrastructure development, urbanization, tourism, mining, and other poorly planned development activities threaten freshwater ecosystems, causing biodiversity loss and extensive ecosystem damage. Large hydroelectric and irrigation dams, pollution, erosion, human encroachment, and alien species threaten the African rivers. Land-based pollution, notably fertilizer eutrophication and unsustainable usage are straining the replenishment mechanisms of some African lakes. Invasive species such as the Nile Perch in Lake Victoria and water hyacinth in other lakes threaten indigenous species, and poor watershed management and flow manipulation (damming and irrigation) harm river ecosystems (UNEP-CBD, 2018). The Mid-Boteti area in north-central Botswana around the Boteti and Niger Rivers, polluted with over 2200 m³ of industrial waste from tanneries, soap and oil factories, dyes, chemical pollutants, and heavy metals, is the most degraded wetland and river in Africa. Mining and unsustainable farming practices endanger wetlands, including Ramsar areas, such as Ghana's Muni-Pomadze. Of the more than 800 wetland ecosystem types in South Africa, 65% are threatened, including 48% are severely endangered, 12% are endangered, and 5% are vulnerable (UNEP-CBD, 2018).

Limited access to clean water can lead to waterborne diseases, sanitation challenges (Chakraborty, 2017; Prüss-Ustün et al., 2019) and social conflict over water resources (Chakraborty, 2017). Ecological crises, such as climate change and deforestation have exacerbated water scarcity in many regions of Africa (Ingrao et al., 2023). Changes in precipitation patterns and increasing temperatures have led to altered hydrological cycles, resulting in a reduced availability of freshwater resources (Konapala et al., 2020). Deforestation, particularly in watersheds and riparian areas, intensifies water scarcity by disrupting the natural water storage and filtration processes (Boyle, 2024; Dhaliwal, 2023). The impact of water scarcity is particularly pronounced in arid and semi-arid regions where communities rely heavily on freshwater sources for drinking, agriculture, and livelihoods (UNESCO and UN-Water, 2020). Competition over limited water resources can exacerbate tension between different user groups, leading to conflicts over access and allocation (Friesen et al., 2017). Additionally, inadequate access to clean water and sanitation facilities contributes to the spread of waterborne diseases and undermines public health (Prüss-Ustün et al., 2019). Evidence from rural Africa indicates that girls born during severe droughts experience lifelong consequences, including stunted growth (World Bank, 2017).

Furthermore, the lack of reliable access to water hinders agricultural productivity and exacerbates food insecurity and poverty in the affected communities (FAO, 2024). Smallholder farmers, who rely predominantly on rainfed agriculture, are particularly vulnerable to fluctuations in water availability (Serdeczny et al., 2017). Adaptive responses to water scarcity in Africa require coordination, technology planning, climate change literacy, and indigenous knowledge integration to address challenges and improve livelihoods (Filho, et al., 2021). Collaborative efforts at the local, national, and regional levels are

essential for mitigating the impact of water scarcity and building resilience in vulnerable communities (UN-Water, 2019).

2.2 | Impacts of ecological crises on development in Africa

Climate change, biodiversity loss, land degradation, and resource depletion significantly undermine sustainable development efforts and resilience in African communities (IPCC, 2022; UNEP, 2023). The interlinked impacts of these ecological crises span the economic, health, infrastructure, agricultural, and human security spheres.

In 2022, African countries incurred over \$9 billion in losses due to devastation and had to allocate 5%–15% of their GDP per capita for reconstruction. It is anticipated that estimated expenses to a minimum of USD 290 billion and US\$ 440 billion would be required to restore damages resulting from climate change under a 2 and 4°C warming scenario on the continent (World Meteorological Organization, 2023). The African Climate Policy Center has predicted a significant drop in GDP in five African subregions due to global warming. The continent's GDP is anticipated to fall by 2.25%–12.12% with global temperature increases of 1–4°C compared with preindustrial levels. West, Central, and East Africa suffer more than South and North Africa do (UN Climate Change, 2020).

A look at countries across Africa shows that climate change significantly affects their economies (Mahamat, 2022) and hampers their sustainable development. The economy and people of Angola have been affected by climate change. The South is witnessing its worst droughts in decades as climate threats increase. Climate-related events (floods, hurricanes, droughts) cost Angola roughly US\$1.2 billion between 2005 and 2017, and droughts alone harm approximately one million Angolans annually. Climate variability is predicted to have a major impact on Angola's water resources, affecting food and energy production and hydropower, which provides most of its electricity. Climate models forecast a temperature increase in Angola, with most of the country expected to become 1–1.5°C warmer between 2020 and 2040 compared with the period from 1981 to 2010. Additionally, there has already been a 1.4°C rise in the annual average temperature (Zeufack & Caetano, 2022). In DR Congo, there is the prospect of cutting rural poverty by 40% and urban poverty by 20% by 2050 if the country embarks on more ambitious economic diversification and climate resilience policies. However, if climate investment and diversification changes are not implemented, economic losses may reach 17% of GDP by 2050. Climate change may increase health expenses from \$92 million in 2010 to \$260 million in 2050 (World Bank Group, 2023).

Climate change is projected to cause declines in crop yields, particularly those of maize, wheat, sorghum, millet (Serdeczny et al., 2017) and cocoa (Jamal et al., 2021), which constitute major staple and commodity exports for the continent (Jamal et al., 2021). Crop production is predicted to decrease across continents because of the higher temperatures and shorter growing seasons. Suitable locations for a crop may change as the local climate changes. With global

warming of 3°C, most maize, millet, and sorghum growing areas in Africa may become unsuitable for current cultivars (Schaeffer et al., 2013). Decreased fishery productivity due to lake and ocean warming also threatens livelihoods and the food supply chain (Lam et al., 2020). Drought, desertification, and increased aridity will further challenge freshwater access for more than 250 million Africans by 2030 (African Union, 2022).

Diverse biodiversity in Africa provides essential services to ecosystems, such as food, clean water, and air. Nevertheless, this crucial natural resource is seriously threatened by illegal wildlife trade, monoculture farming, air and water pollution, deforestation, climate change, and an increasing presence of invasive species. The connection between biodiversity, human health, and well-being is becoming more comprehensible; however, additional research is needed, particularly on zoonoses. The undervaluation of biodiversity as an economic asset hampers conservation efforts and diminishes its significance in agriculture, particularly in safeguarding pollinators and preserving diversity to adapt to climate change (UNEP, 2016). In addition, biodiversity declines due to habitat loss and species extinctions disrupt essential ecosystem services that rural Africans depend on for sustenance, fuel, medicine, and cultural practices (Archer et al., 2018). Deforestation also contributes to worsening soil erosion and flooding (IPCC, 2022; UNEP, 2016). Diminished nature-based food sources and the inability to rely on local ecological buffers magnify the nutrition and health risks during shocks (Myers et al., 2013). For people in developing countries, climate change refers to skyrocketing food prices toxic air, and water pollution. It leaves countries with just one natural disaster away from poverty, forcing parents to pull their children out of school and entire communities to migrate.

The effects of climate change on human health, the environment, and the African economy can hinder economic growth. Africans are among the most vulnerable to climate change, which affects their health. This susceptibility is partially attributable to the prevailing issues of poverty, fragile institutions, and armed conflict. These constraints hinder the ability of African countries to address the supplementary health risks associated with climate change. Nevertheless, the nature and extent of the health consequences of climate change differ considerably across people and areas (ACPC, 2013). Vulnerable groups face the most severe threats: women, children, and poor and marginalized communities experience disproportionate risks and livelihood disruption from environmental crises and entrenching inequality (Suckall et al., 2015).

2.3 | Policy gap, planning policy, and adaptation frameworks for enhancing resilience

Resilience describes the capacity of interlinked social and ecological systems to persist, adapt, transform, and even thrive amidst disturbances (Folke et al., 2010). Resilience involves bouncing and thriving in the face of several challenges (Truffino, 2010). It embodies the capacity to absorb and adapt to changes and is not necessarily synonymous with stability (Laprie, 2008). The qualities of resilient human

communities include social cohesion, collective action, systems thinking, diversity, self-organization into adaptive modes, and, crucially, the agency that influences policies and institutions impacting local vulnerability contexts (Aldunce et al., 2016; Magis, 2010).

A pivotal contention arises in light of the socioeconomic and political circumstances surrounding climate change in sub-Saharan Africa: adaptation to climate change requires resilience. This resilience entails the capacity to effectively cope with the strains and disruptions arising from environmental shifts while maintaining the fundamental structure and operational mechanisms, the ability to self-organize, and the ability to acquire knowledge and adjust in response to change (Ifejika, 2010). Pan-African frameworks highlight indigenous knowledge, structural reforms, decentralized governance, and community-based initiatives as crucial levers for climate adaptation and resilience building (Ziervogel et al., 2022). Nevertheless, persistent political, economic, and capacity barriers constrain local adaptation and resilience planning targeting vulnerable African populations, which requires multilevel governance approaches (Challinor et al., 2007). Multilevel governance approaches seek to bridge national commitments and on-the-ground needs in African countries through enhanced policy coordination and participation across sectors and stakeholders (Keskitalo et al., 2016).

In addition, inadequate inter-ministry collaboration and information exchange, which have hindered climate-policy success in many countries, are significant constraints. Non-lead ministries are poorly represented in policymaking, and there are insufficient pathways for bottom-up participation (Giles et al., 2021). Furthermore, funding constraints result in fragmented policies that often lack precise implementation instructions, particularly at the local level (Giles et al., 2021). African policy landscape analyses have revealed gaps between sustainability commitments and policy planning (Berretta, 2022; Chevalier, 2023; Kiunsi, 2013). Critics cite weak policy coordination across sectors and limited environmental mainstreaming as the key barriers (Masih et al., 2014). The implication is that many climate initiatives in Africa have not been collaborative and inclusive, do not tap into local knowledge, or involve local communities who are key stakeholders, thereby losing local ownership of such initiatives. Stakeholder engagement is a strategy proposed to improve the responsiveness and viability of policy initiatives (Burr et al., 2022; Coninck et al., 2018; Sherman & Ford, 2014).

Addressing the climate change challenges in Africa requires a comprehensive and integrated approach. While disaster response, agriculture, land use, and food security policies are crucial, they are insufficient. There is a need to explicitly focus on the social policy dimensions that enable community adaptive capacity, a dimension that has often been overlooked (Bonvin & Laruffa, 2022). The gaps between sustainability rhetoric and environmental mainstreaming in development planning continue to hinder progress in building resilience (Masih et al., 2014). Therefore, this study advocates the integration of environmental considerations into national social policy planning. This approach, which combines bottom-up and top-down initiatives, is crucial in driving systemic resilience in vulnerable African populations.

3 | METHODOLOGY

This study uses a mixed-methods approach, combining policy analysis from four countries (Egypt, Kenya, Nigeria, and South Africa) and stakeholder consultations via questionnaire administration across African countries. A mixed-method design was selected because it combines the strengths of quantitative and qualitative data to provide a comprehensive understanding of the research problem (Creswell & Creswell, 2018).

The policy analysis component systematically examines existing policies relevant to research objectives across African countries, assessing their content for the incorporation of climate risks, environmental considerations, and sustainability objectives (Pal, 2014; Weimer & Vining, 2017). Text-mining techniques have been used to quantify key terms related to resilience, climate adaptation, and environmental impact mitigation across policies (Moreno & Caminero, 2022; Talib et al., 2016).

Stakeholder consultations involved semi-structured questionnaires administered to government officials, policymakers, community leaders, and climate change activists across Africa (Mack et al., 2005). Purposive and snowball sampling was used to compose a sample of 70 stakeholders across African countries, with 47 responses received from 15 African countries (Andrade, 2021; Guarte & Barrios, 2006; Naderifar et al., 2017).

Integrating policy dataset analysis with stakeholder input allows for a robust assessment of gaps and opportunities for enhanced environmental integration in social policy development. The limitations include language barriers, participant biases, and sample size constraints, although mixed methodologies help mitigate these concerns (Creswell & Creswell, 2018).

By combining policy analysis and stakeholder perspectives, this study provides a holistic understanding of the policy landscape across African countries, informing the development of policy recommendations that effectively address local needs and priorities.

4 | RESULTS AND DISCUSSION

4.1 | Limitations of the study

This study provides valuable insights into the integration of environmental concerns into social policy planning in Africa. However, it is essential to acknowledge the limitations of the present study. A key limitation relates to the language barriers inherent in Africa and its diverse linguistic landscapes. Another limitation stems from the study's reliance on the perspectives and experiences of the participants in stakeholder consultations. Although valuable, this approach could introduce inherent biases or individual beliefs, potentially limiting the representation of the viewpoints of a wider population. However, this study's mixed methodology, which included a sample of 70 stakeholders from 15 African countries, was designed to mitigate these concerns. This demonstrates careful consideration of the study design and enhances its credibility.

The geographical scope of the study, which focused on four countries (Egypt, Kenya, Nigeria, and South Africa) for policy analysis and received responses from respondents from 15 countries for stakeholder consultations, may restrict the applicability of the findings to other African countries. Ecological challenges, social policies, and cultural norms may vary significantly across regions and may not be adequately captured within the scope of this study. This underscores the need for further research to address these limitations and to broaden the understanding of environmental concerns in social policy planning in Africa.

Furthermore, the use of purposive and snowball sampling may introduce self-selection bias, as individuals who choose to participate in stakeholder consultations may have different characteristics or perspectives than those who do not. Finally, although this study examined existing policies and their contents, it may not fully capture the variability in policy implementation and enforcement across different regions, localities, or sectors. This could potentially affect the conclusions of this study regarding the integration of environmental concerns into social-policy planning.

It is crucial to consider these limitations when interpreting findings and their broader implications for social policy development in Africa. By doing so, we ensured that our interpretations were well-informed and responsible, taking into account the complexities and nuances of the research.

4.2 | Results

4.2.1 | Policy analysis findings

The policy gap analysis revealed the limited integration of climate risks and sustainability planning across current social development policies in the focus countries. Specifically, deficiencies exist in mainstream resilience mandates, environmental impact assessments, future climate projections, ecological monitoring, and community participation. These results align with other African policy landscape reviews, highlighting the disconnection between national sustainability vision statements and on-the-ground development planning and regulation (Kiunsi, 2013; Parnell & Walawege, 2011). African countries are highly susceptible to the impact of climate change (IPCC, 2022; UNEP, 2023), with many countries already experiencing increased droughts, floods, and extreme weather events (IPCC, 2022). African countries are taking steps to address these challenges through various environmental and climate-change policies.

An analysis of South Africa's national climate policies revealed ambiguities, coordination gaps, and the absence of operationalization frameworks as persistent barriers to building local resilience (Ziervogel et al., 2014). Project 90 by 2030 (2017) states that renewable energy programs to address climate change in South Africa have been hindered by policy uncertainty and corruption in the energy and transportation sectors. Additionally, the country's health system has not been adequately prepared for the impact of climate change. To address these issues, South Africa has introduced several policies,

including the National Climate Change Adaptation Strategy and Renewable Energy Independent Power Producer Procurement Program (Republic of South Africa, 2019, 2021). These policies aim to reduce a country's reliance on fossil fuels, promote renewable energy use, and build resilience to climate change. The new National Climate Change Bill shows potential because the regulations facilitate coordination among several government departments to eliminate policy confusion and align related policies (Republic of South Africa, 2018). Lukey (2020) argues that even though it is difficult to quantify, there is a widespread belief that South Africa significantly increased its climate change responses toward the end of the National Climate Change Response Policy creation process. This divergence highlights the variability in the progress of environmental mainstreaming across African contexts based on governance regime types. The link between policy gaps and the underlying political economy merits further investigation. For instance, the different ratification statuses of multilateral climate agreements may influence the national planning processes (Falkner, 2016). Overall, the trend of maladaptive policies calls for mainstreaming mechanisms tailored to localized bureaucratic pathways and stakeholders' priorities.

Kenya has implemented several policies to promote sustainable development and climate resilience. This included the Climate Change Act of 2016, which established a framework for climate change governance and incorporated climate change into national development plans (Government of Kenya, 2016a). Kenya has implemented several initiatives to promote renewable energy production and usage and reduce greenhouse gas emissions, such as the Kenya off-grid solar access project and Kenya's green economy strategy (Government of Kenya, 2016b; World Bank, 2019a, 2019b). Significant obstacles to the fight against climate change include poor governance institutions that hinder climate-policy integration (Nthambi et al., 2021; Renner, 2020). National actors do not prioritize climate financing, fragmentation, and damage to climate-policy processes (Renner, 2020). Current funding falls significantly short of the financing required to meet specific targets and excessively prioritizes specific sectors over others, thereby neglecting sectors that are critical to the fight against climate change. Efforts to address climate change have narrowly focused on the national level and have neglected local stakeholders and communities (Ochieng & Jattani, 2023).

Egypt has signed several international conventions, including the Paris Climate Change Agreement, Kyoto Protocol, UN Framework Convention on Climate Change (UNFCCC), Montreal Protocol on substances that deplete the ozone layer, and Vienna Convention on the Protection of the Ozone Layer (The Arab Republic of Egypt, 2024). The country is committed to the Paris Climate Change Agreement (Abou-Ali et al., 2023). Locally, the National Climate Change Strategy (NCCS) provides strategic guidance and directions for environmental protection from the effects of climate change. It promotes the transition to a green economy (The Arab Republic of Egypt, 2022). The new Nationally Determined Contribution (NDC) focuses on enhancing activities, adaptation, and policy and includes sector-specific targets (Abou-Ali et al., 2023). Minister of Environment Resolution No. 34 of 2023 established an Environmental and Climate Investment Unit

within the Ministry of Environment to attract and stimulate investments in mitigation and adaptation projects in energy, sustainable agriculture, food production, water, waste management, bioeconomy, and ecotourism (The Arab Republic of Egypt, 2019). The main obstacles are insufficient data and resources, low public awareness, ineffective policy execution and coordination, inadequate environmental rules, limited financing, and the pressing need to prioritize climate adaptation and resilience building for vulnerable communities. An all-encompassing strategy involving the private sector and promptly taking advantage of the possibilities of climate action is necessary (Abou-Ali et al., 2023).

Nigeria has made significant progress in committing to international climate conventions and updating its national laws to address climate-change issues. The country has ratified six climate change action plans for the period spanning from 2016 to 2021 (Kareem, 2023). Important local laws and strategies include the 2021 Climate Change Act, which offers national-level strategic guidelines for climate actions in the country (FGN, 2021c); the updated NDC-2021 (FGN, 2021a), 2050 long-term vision for Nigeria (LTV-2050), which aims to reduce Nigeria's carbon footprint, promote climate resilience, develop a high-growth circular economy by 2050, cut current emissions by half, and achieve net-zero emissions across all sectors while addressing gender inequality (FGN, 2021b, p. ii). However, the country faces multifaceted challenges in implementing climate-change policies, ranging from financial constraints to the need for greater stakeholder involvement and proactive governmental measures. Addressing these issues is crucial for a country to effectively mitigate climate impacts and contribute to global climate resilience efforts (Kareem, 2023). In Nigeria, significant impediments to climate change planning and response include a lack of mainstreaming of adaptation in policy and discourse, limited funding, lack of political prioritization of climate action, poor collaboration, and coordination between key actors, and inadequate support and resources for vulnerable local communities to build their adaptive capacities. Addressing these limitations could significantly strengthen Nigeria's climate adaptation response (Butu et al., 2022).

Ziervogel et al. (2022) reported that the WGII identified knowledge gaps in climate and development research. The chapter on Africa identified research gaps in (1) the impact of climate change on marine ecosystems, agriculture, migration, health, and possible adaptation responses; (2) climate effect attribution and its influence on knowledge of loss and damage; and (3) the costs, benefits, limitations, viability, and financing of diverse adaptation choices as climate warming increases. (4) Systemic climatic effects and reactions, particularly those affecting food systems. (5) The significance of political economics, governance, and collaboration in addressing climate risk (Trisos et al., 2022; Ziervogel et al., 2022).

However, there are still significant challenges in implementing these policies in Africa, including limited financial and technical resources, a lack of capacity, and political instability. The African Development Bank (AfDB) has been working to address these challenges by providing funding and technical assistance for climate

change projects (AfDB, 2023). Scalable climate adaptation is crucial for Africa's future. When effectively executed, adaptation creates substantial prospects for increased production, economic advantages, and poverty alleviation (AfDB & GCA, 2022).

Although Africa faces significant challenges in addressing climate change, many countries are implementing environmental and climate-change policies. These efforts aim to promote sustainable development, build resilience to climate impact, and reduce greenhouse gas emissions. However, more support is needed to address the challenges of implementation and to ensure that these policies are effective in achieving their goals.

4.2.2 | Community consultation perspectives

The stakeholder consultations yielded rich insights into perspectives on climate threats, policy gaps hindering resilience planning, and strategies for the better integration of environmental considerations into social policy development across various African contexts. These findings are discussed in detail below.

Key climate threats and impacts

The stakeholder consultations highlighted adverse climate impacts like flooding 32%, drought and desertification 13%, food security and agriculture 11%, extreme weather events 9%, and others, including gas flaring, sunray effects, and insect outbreaks (9%) as the most frequently cited climate threats facing African countries, see Figure 1. These threats exacerbate food and water insecurity, loss of biodiversity, land degradation, poverty, and displacement (IPCC, 2022). Rising sea levels also threaten the coastal regions (UNEP, 2023).

Figure 2 indicated that, on average, respondents rated the current climate impacts on vulnerable communities as severe, with a mean rating of 4.06 and a standard deviation of 0.93, suggesting that most of the responses or observations fell within the range of approximately 3.13 (4.06–0.93) to 5 (4.06 + 0.93), indicating a relatively consistent distribution of responses or observations falling within the moderately severe to very severe range. This highlights the urgent need to address climate change and its impacts on these communities. This aligns with the existing evidence on medium-to-high climate risk exposure across Africa (Birkmann et al., 2022).

Furthermore, research indicates that African countries are experiencing significant economic impacts due to climate change, with income levels projected to converge despite climate-induced losses amounting to 10%–15% of GDP per capita. Western and Eastern African countries are expected to be the most affected, potentially exacerbating inequalities and impacting the achievement of sustainable development goals (SDGs) (Wesenbeeck et al., 2016). Sub-Saharan Africa's vulnerability is further compounded by multiple stresses that limit adaptive capacity and negatively affect food security and livelihood. The interconnections among climate change impacts, food security vulnerabilities, and livelihood outcomes are critical for developing effective policies and programs (Baarsch et al., 2020).

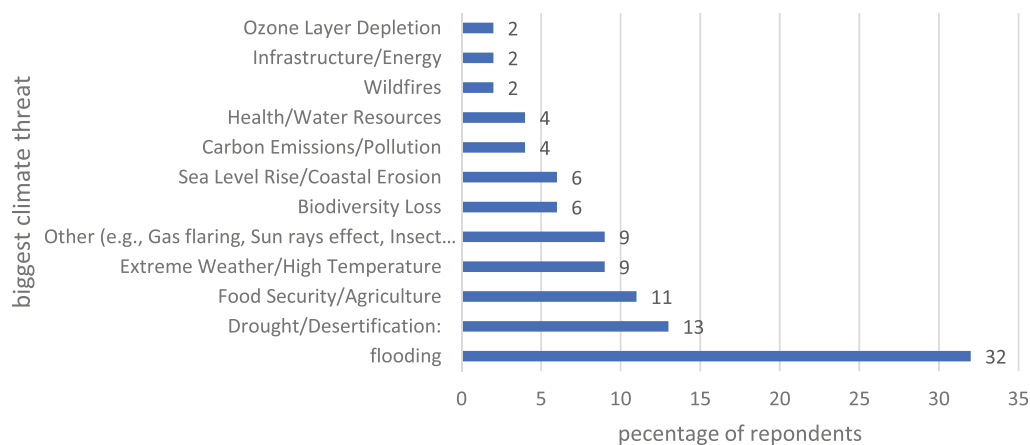


FIGURE 1 What are the biggest climate change threats facing your country?

FIGURE 2 How severe are the current climate change impacts on vulnerable communities in your country?

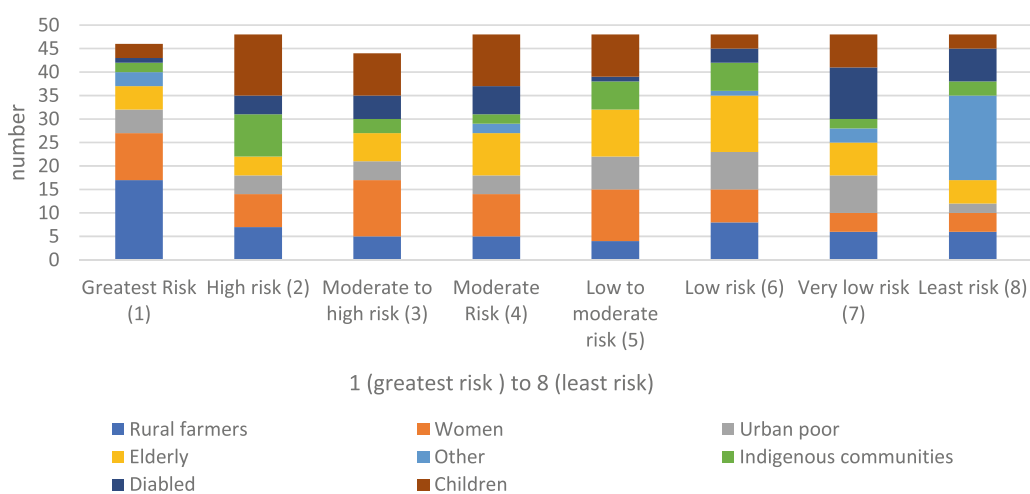
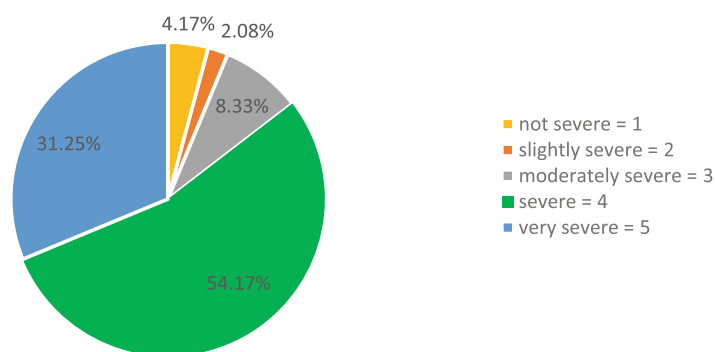


FIGURE 3 Which vulnerable groups face the greatest climate change risks?

Most vulnerable groups

In Figure 3, rural farmers, women, children, older people, and the urban poor are identified as the groups facing the greatest climate risk. At the same time, children and indigenous communities are considered to face a high risk from climate change.

This aligns with the literature on disproportionate climate vulnerability among marginalized populations dependent on climate-sensitive livelihoods (Birkmann et al., 2022). Localized studies in sub-Saharan Africa show that vulnerable groups in climate change-prone areas may require different poverty-reducing strategies compared to generic ones, especially in East Africa. This suggests a need for targeted policies to address specific vulnerabilities (Gemed & Sima, 2015). Climate change in Sub-Saharan Africa is expected to lead to warming trends, increased aridity, and changes in rainfall patterns with significant social repercussions. These include increased under-nutrition, infectious diseases, and rural-urban migration, which may expose migrants to new risks in urban areas (Adhikari et al., 2015).

Barriers to integration of environmental considerations into social policies

Funding constraints, lack of political will, lack of expertise, and limited public awareness are barriers that are predominantly cited in the successful integration of environmental considerations into social policy planning, see Figure 4. Systemic barriers related to governance issues and resource limitations appear to be the most pressing (Sibiya et al., 2023), while technical capacity (Azhoni et al., 2017; Conway & Schipper, 2011), and public engagement are also lacking (Sherman & Ford, 2014).

The Afrobarometer 2022 survey results and previous findings show that there is low climate change awareness among Africans, especially rural residents, impoverished citizens, and those with limited education and infrequent news access. This indicates a knowledge gap and the potential to raise awareness and popular support for climate action. In addition, the government is indicted for its poor

response to climate change and for the need to increase its efforts (Logan & Amakoh, 2022).

Most climate change experts agree that it is affecting the quality of life and requires rapid government action, even if it is costly or hurts the economy. A significant majority are unhappy with the efforts of various stakeholders, such as businesses and industries, industrialized countries, and the populace, and demand increased action to mitigate the adverse impacts of climate change (Duntoye et al., 2023).

Current state of integration into sectoral policies

As indicated in Table 1, the integration of climate risks/resilience across sectors like food security, water access, housing, healthcare, education, social protection, and community development was rated “somewhat integrated,” with mean ratings between 2.35 and 2.50 on a scale of 1 (not well integrated) to 5 (very well integrated). This suggests that integration has occurred to some extent. However, there are substantial gaps across policy domains in mainstreaming environmental considerations (Scott et al., 2022; Soanes et al., 2021).

Climate change is predicted to negatively impact crop yields in Eastern Africa, with strategic crops such as wheat, maize, rice, and soybean expected to suffer significant yield reductions. Resilient crops, such as millet and sorghum, as well as root crops, may fare better. Export crops such as tea, coffee, bananas, and sugarcane are also at risk owing to changes in suitable growing areas. The development of small-scale irrigation and water-harvesting structures has been suggested as a mitigation strategy, although affordability remains a concern (Sultan & Gaetani, 2016).

Agriculture in West Africa, which is heavily reliant on rainfed systems, is particularly susceptible to climatic variability. The region is experiencing rapid climate change with robust evidence of agricultural yield loss due to increased mean temperatures. Adaptation strategies for major crops are being explored, but further efforts are needed to improve modeling and quantify uncertainties (Opoku et al., 2021). Health systems in Africa are also under pressure from climate change,

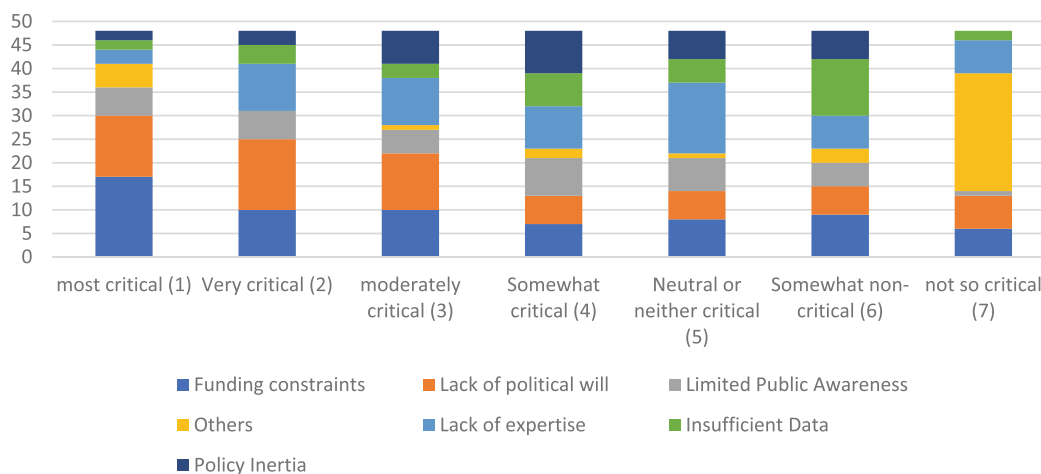
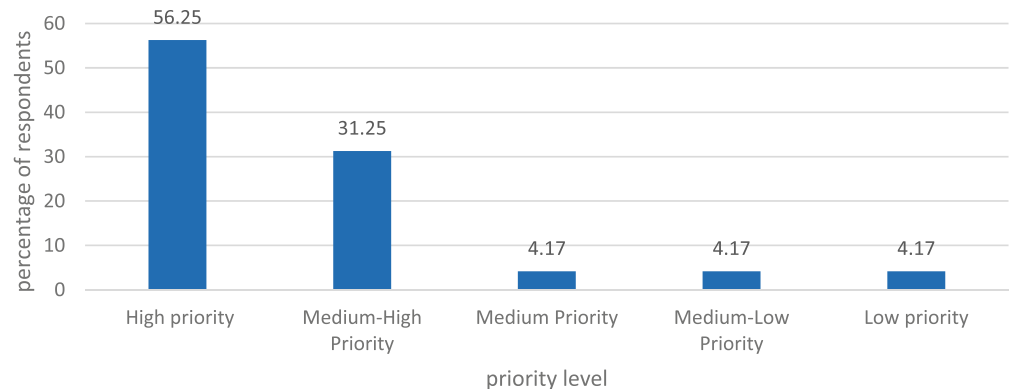


FIGURE 4 In your opinion, what are the primary barriers to successfully integrating environmental considerations into social policy planning?

TABLE 1 How well integrated are climate risks and resilience into current social policies.

	Food policy	Water access	Housing	Education	Social protection	Community dev.	Healthcare
Mean	2.35	2.38	2.35	2.45	2.50	2.48	2.44
Standard error	0.16	0.17	0.19	0.19	0.19	0.17	0.18
Median	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Mode	3.00	2.00	1.00	1.00	1.00	2.00	1.00
Standard deviation	1.12	1.20	1.31	1.28	1.30	1.17	1.22
Sample variance	1.25	1.43	1.72	1.64	1.70	1.36	1.49
Range	4	4	4	4	4	4	4
Minimum	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5
Sum	113	114	113	115	120	119	117
Count	48	48	48	47	48	48	48

Note: Scale range: 1 = not well integrated, 2 = somewhat integrated, 3 = moderately integrated, 4 = well integrated, and 5 = very well integrated.

FIGURE 5 How would you prioritize the importance of integrating social policy into environmental considerations compared to other policy considerations?

with public health professionals in six African countries reporting extensive experience with climate-related health problems. Improving infrastructure, medical equipment, and technical support are necessary to build resilience in vulnerable populations (Serdeczny et al., 2017). The arc of instability in sub-Saharan Africa, stretching from Somalia to Mauritania, is highly susceptible to climate change, which worsens humanitarian emergencies and health challenges. Despite their minimal contribution to anthropogenic causes, these regions have experienced severe impacts (Connolly-Boutin & Smit, 2016).

Importance of integrating social policy into environmental considerations compared with other policy considerations

Figure 5 indicated that the majority of respondents stressed the importance of integrating social policy considerations into environmental considerations compared with other policy considerations, with 56.25% rating it as a high priority (5 on a scale of 1–5). Additionally, 31.25% of the respondents rated it as a medium-high priority (4 on a scale of 1–5). Only 4.17% of the respondents rated it as medium priority (3 on a scale of 1–5), medium-low priority (2 on a scale of 1–5), or low priority (1 on a scale of 1–5).

This indicates that a significant majority of respondents consider the integration of environmental considerations into social policy a high or medium-high priority, reflecting the growing recognition of the importance of addressing environmental issues in policy planning and decision-making.

Stakeholder collaboration strategies

Respondents emphasized several key strategies for better collaboration to incorporate environmental considerations into social policy. These include effective communication and information exchange among stakeholders to identify environmental challenges and to create effective rules. Cross-sectoral partnerships involving government agencies, NGOs, companies, and local communities are crucial in sharing ideas and expertise to develop comprehensive policies. Having similar goals helps focus efforts and resources, promoting alignment and commitment to sustainability. Stakeholders should use task forces and working groups to collaborate and make decisions, facilitating discourse, consensus building, and coordination. Capacity building through training workshops and knowledge sharing promotes environmental awareness and policy making. Robust monitoring and evaluation frameworks enable continuous improvement of policies based

on evidence gathered through stakeholder collaboration. Resource sharing among stakeholders maximizes environmental considerations in policymaking.

Additionally, inclusive decision-making and stakeholder empowerment are stressed, emphasizing community engagement and incorporating their views. Raising knowledge and establishing a sense of responsibility through awareness and sustainability promotion can support environmental measures in different industries. In conclusion, broad stakeholder participation is essential for incorporating environmental factors into social policies and for promoting collaboration, policy consistency, partnerships, and community engagement to achieve sustainable and resilient societies.

How can local stakeholders and vulnerable groups be more engaged in the policy process?

Engaging local stakeholders and vulnerable groups in the policy process requires a multifaceted approach that prioritizes inclusivity, participation, and empowerment. In response to this open-ended question, respondents recommended strategies included raising awareness through campaigns and workshops, conducting inclusive consultations, providing capacity-building programs, fostering partnerships and collaboration, ensuring accessibility of policy information, empowering communities through education and awareness, utilizing community leaders as liaisons, incorporating traditional knowledge, establishing feedback mechanisms, and involving representatives in decision-making bodies. By implementing these strategies, policymakers can create policies informed by the needs and perspectives of the diverse groups they aim to serve, thus fostering greater community ownership and support.

Respondents' recommendations for enhancing climate adaptation through social policies

The recommendations provided by the respondents offer diverse strategies to enhance climate adaptation through social policies. Key themes included community engagement and participation, education and awareness, knowledge sharing and capacity building, support for sustainable livelihoods, equitable access to resources, integration of climate adaptation into urban planning, and fostering research and innovation. Additionally, there is an emphasis on inclusive decision-making processes, advocacy efforts, enforcement mechanisms, and financial incentives. These strategies aim to empower communities, build resilience, and address the complex challenges posed by climate change using a comprehensive and collaborative approach.

4.3 | Discussion

4.3.1 | Policy analysis discussion

Climate change poses a substantial threat to sustainable development, particularly (Kumar et al., 2024) in Africa. Recent policy reviews have revealed gaps in resilience planning and implementation across many African countries (Kiunsi, 2013; Parnell &

Walawege, 2011). While national policies often include vision statements related to sustainability and climate adaptation, on-the-ground development activities frequently lack adequate environmental impact assessments, future climate projections, ecological monitoring, and community participation structures (Kiunsi, 2013; Parnell & Walawege, 2011).

South Africa exemplifies the challenges of translating national climate policies into buildings with local resilience. Despite the introduction of progressive policies, such as the National Climate Change Adaptation Strategy and the Renewable Energy Independent Power Producer Procurement Programme, ambiguities, lack of coordination, and absence of operational frameworks persist as barriers (Ziervogel et al., 2014). However, in recent years, the country has significantly increased its response to climate change (Lukey, 2020). Kenya presents a contrasting example, where national policies, such as the Climate Change Act of 2016 have mainstreamed climate change governance and priorities across sectors (Government of Kenya, 2016a). Nevertheless, the problems of inadequate funding and over-prioritization of the energy sector over sectors that are equally critical to the fight against climate change are inhibiting progress. Differing governance contexts are likely to contribute to the variability in the success of environmental mainstreaming across African countries. Nigeria ratified six climate change action plans for the period spanning from 2016 to 2021. This is significant progress; however, the country faces multifaceted challenges in implementing climate change policies, ranging from financial constraints to the need for greater stakeholder involvement and proactive governmental measures. Addressing these issues is crucial for a country to effectively mitigate climate impact and contribute to global climate resilience (Kareem, 2023). Egypt has made significant progress in its struggle with climate change. However, Abou-Ali et al. (2023) suggested that several factors inhibit the efficient and effective formulation and implementation of climate change policies. These include a lack of data and resources, limited public awareness, ineffective implementation and coordination of policies, inadequate environmental regulations, limited financial support, and an urgent need to prioritize climate adaptation and resilience building for vulnerable communities.

Beyond policy content, underlying political and economic factors also influence progress. For instance, a country's ratification status of multilateral climate agreements can enable or constrain national planning (Falkner, 2016). The corruption and uncertainty surrounding renewable energy programs in South Africa demonstrate such political barriers (Project 90 by 2030, 2017). Nigeria faces similar limitations to climate change and is not politically prioritized, resulting in insufficient mainstreaming of adaptation and resources for vulnerable communities (Butu et al., 2022).

Many African countries have outlined commitments and strategies related to climate adaptation and resilience in documents, such as NDCs and National Climate Change Strategies. However, common implementation obstacles include a lack of data, resources, public awareness, policy coordination, environmental regulations, and financing (Abou-Ali et al., 2023). The African Development Bank provides essential support through funding climate projects and technical

assistance. However, scalable adaptation remains crucial for Africa's development (AfDB, 2023; AfDB and GCA, 2022).

Although African countries have made strides in developing climate change policies, significant work remains to address these implementation challenges. Suggested priorities for research and practice include evaluating climate impacts and adaptations for agriculture, ecosystems, migration, health, and livelihoods; improving climate attribution links to loss and damage; estimating the costs and benefits of adaptation options; analyzing systemic climate effects on food systems; and understanding governance roles in risk mitigation (Trisos et al., 2022; Ziervogel et al., 2022). With adequate support and political will, African countries can translate their policies into practices to promote resilience and sustainable development.

4.3.2 | Stakeholder perspectives discussion

These findings highlight the gravity of climate threats across African countries and disparities in climate vulnerability among marginalized populations, which is consistent with existing research (IPCC, 2022). The barriers cited by respondents largely align with the literature on systemic challenges to the integration of environmental considerations into social policies (Masud & Khan, 2024).

Prominent climate threats identified by respondents included increased flooding, droughts, heat waves, rainfall variability, coastal erosion, biodiversity declines, and escalating aridity levels, posing risks to water access, health, ecosystems, infrastructure, and crucially, agriculture and food security (Boko et al., 2008). Survey findings reinforce scholars' warnings that climate impacts can entrench poverty, inequality, and migration pressure in Africa (Hallegatte, 2016; Obioha, 2008). Rural farmers, women, children, people with disabilities, the elderly, indigenous communities, and the urban poor are disproportionately vulnerable.

The poor state of current integration across sectors underscores the urgent need for mainstreaming climate considerations into policymaking to build resilience (Soanes et al., 2021). Regarding barriers to climate-informed social policy, limited public awareness, funding constraints, lack of political will, insufficient expertise, and weak multisector coordination have been widely cited. Policy inertia and data limitations have emerged as persistent challenges (Adenle et al., 2017). Participants rated the integration of environmental considerations as very low across housing, healthcare, education, water, and disaster management policies, demonstrating an enduring disconnect between climate risks and social protection needed by vulnerable groups during intensifying disruptions. Collaboration strategies also mirror established best practices in stakeholder engagement, capacity building, and participatory planning (Burr et al., 2022; Coninck et al., 2018).

Building resilience in socio-ecological systems can be achieved through structured scenarios and active adaptive management, thereby promoting learning and future development options (Folke et al., 2002). To enhance coordination, respondents emphasized communication platforms enabling diverse stakeholders—from governments, NGOs, and businesses to local leaders and vulnerable

communities—to collectively determine adaptation priorities based on transparent climate information. Climate change policies must include women and people experiencing poverty, ensure sustainable development, and avoid further deprivation while addressing gender-related inequalities in the developing world (Denton, 2002).

Key policies and initiatives should revolve around resilience initiatives that are cross-scalar, context-specific, inclusive, flexible, iterative, and supported by dedicated financing streams that benefit the most exposed (Fang et al., 2022). Effective policy integration relies on assessments that illuminate locally experienced vulnerabilities, multi-stakeholder agenda setting, firewalling adaptation resources, and response systems built for dynamic updating as scenarios evolve (UNEP, 2023).

A study that explored existing adaptation policies at the regional and national levels, with a specific case study on Ghana, found that Ghana's climate change policies prioritized increasing the resilience of smallholder farmers. However, significant barriers exist, including misaligned development and climate agendas, gender inequality, elite capture, institutional fragmentation, a lack of coordination, and a clear governance mandate. For example, the implementation of climate adaptation initiatives, such as the Food and Agriculture Sector Development Policy (FASDEP II) and Investing for Food and Jobs (IFJ), is bedeviled by inadequate institutional capacity and financial constraints (Gali, 2023).

Stakeholders suggest prioritizing political commitment, increasing funding, building technical expertise, implementing targeted awareness campaigns, inclusive governance mechanisms for climate-sensitive policy formulation and implementation, assessing and addressing sector-specific integration gaps, fostering multi-stakeholder collaboration, and empowering local agencies. Comprehensive action is required across governance, policies, capacities, finance, and planning systems to place climate resilience at the core of the development.

5 | PROPOSED POLICY GUIDELINES

After synthesizing all the findings, this study proposed a policy planning framework incorporating sustainability impact assessments, ecological and community monitoring requirements, climate adaptation milestones, decentralized community engagement mechanisms, and reporting on resilience outcomes during evaluation. These guidelines provide practical entry points for policymakers to enact adaptive, responsive, and socially inclusive planning processes that address environmental changes.

Resilience initiatives should be designed with multiple scales and contexts in mind rather than a one-size-fits-all approach. They must be tailored to the specific vulnerabilities and needs of the different communities. Therefore, inclusivity is an important factor. Initiatives should engage and empower vulnerable and marginalized groups, not just the central authorities. Flexibility and iterations were required. Initiatives must evolve as new challenges emerge. Regular reevaluation and adaptation are necessary.

Mainstream resilience is required across all development policies through enforceable mandates to integrate resilience considerations, principles, and practices into all aspects of development policies, plans, and programs. Ensuring resilience to shocks and stresses is an integral part of development efforts rather than just an add-on or afterthought.

Dedicated financing is required to support those most exposed to climate hazards and those who lack the resources to respond independently. Funding should focus on building local capacity and agencies. Overall, a crosscutting set of principles regarding multilevel collaboration, equity, adaptability, and adequate financing can help guide effective climate resilience programs and policies. Specifications differ across locations and contexts.

6 | CONCLUSION

This study sought to determine how greater integration of environmental considerations in social policy planning can build resilience in African communities facing escalating climate change and ecological uncertainty. Development and planning policies seldom consider intensifying climate impacts or undermining community-adaptive capacities. The existing policy frameworks present a crucial mechanism for facilitating evidence-based adaptation policies and resilience initiatives.

This study utilized a mixed methodology blending policy analysis from four African countries with qualitative consultations among 47 national, provincial, and community stakeholders across 15 African countries. The findings reveal significant gaps in mandated resilience planning, environmental impact assessment, ecological monitoring, and local participation across the breadth of current social policies. Stakeholders underscored the lived experiences of policy gaps that failed to marginalize communities during climate shocks.

These results demonstrate the clear need for more binding requirements and decentralized guidelines for climate risk anticipation, mitigation mainstreaming, and adaptation co-creation in policy-making processes. The proposed framework offers resources for increasing sustainability, transparency, and participation and ultimately enhances resilience outcomes from development planning. Beyond practical recommendations, this study theoretically highlights policy integration as a pivotal mediator between top-down commitments and grassroots needs for system resilience building in Africa.

The successful realization of resilience goals necessitates extensive collaboration across sectors, stakeholders, jurisdictions, and academic disciplines at each policy-development stage. As climate uncertainty continues to pose existential threats to vulnerable African populations, intentionally adaptive policy ecosystems can build a capacity to navigate risks. The broad intended and unintended consequences of cross-scalar policy changes warrant further investigation. This study contributes an evidence-based replication model for the propagation of environmental considerations within the social policy sphere.

Future research may include a longitudinal evaluation of resilience outcomes from policy integration efforts and expanded case studies across African countries. A key limitation was the breadth of the policy sectors covered, which constrained the depth of analysis for each sector. To address this, future studies could utilize more focused policy audits within priority development domains, such as agriculture, water resources, and disaster risk reduction. In addition, language barriers may have hindered comprehensive data collection in some countries. Partnering with local translators and expanding the research team would help to overcome such constraints. Overall, continuous monitoring, evaluation, and adaptation of the policy integration framework are crucial for iterative improvements and sustained positive impacts.

AUTHOR CONTRIBUTIONS

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

ORCID

Waidi Gbenro Adebayo  <https://orcid.org/0000-0002-3235-8790>

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