

Climate Change Mitigation and Flooding Governance: Recent Experience from Africa

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ABSTRACT

Across West and Sub-Saharan Africa countries, flood had claimed many lives and left thousands of people affected and loss of lives has been a notable consequence of flood. Evidences have shown that the recent flooding experience in some municipalities in African cities has become unbearable for the citizenry which has resulted to the impact of climate change on flooding emphasized on two major areas of livelihood, which are agriculture and health. Health risk is also attributable to climate-induced flooding as a result contaminated water due to destruction of crude oil and sewage pipelines and inadequate preparation for disaster. This paper relies heavily on secondary data as a method of gathering useful and important information as related to this study. The paper concluded that flood had continued to ravaged the state and the scourge of climate change had not been abated due to certain challenges militating against the implementation of the strategies in Africa.

Keywords: Governance; Flooding; Climate Change; Climate Action Plan; Vulnerability; Africa.

INTRODUCTION

The efforts of the global community directed at tackling climate change were worthwhile in view of its potential negative impacts. In this connection, the IPCC (2017) forecasted that emissions of greenhouse gas could escalate by 25-30% by 2030 implying that the earth temperature would increase by 3°C. Environment constitutes a critical factor for human existence. It is a platform on which human activities are based for contributions towards economic growth and development of a nation. Hence, any form of threat to the environment is a threat to human existence. This underscores the fact that making peace with our planetary environment is an essential condition for us to fully make 'peace' (Ashley, Blanksby, Chapman & Zhou, 2007).

Climate change is a major threat to the environment and human survival due to the magnitude and multifarious dimensions of its impacts. It is caused primarily by natural events and human activities (anthropogenic factors). Climate change is an atmospheric condition - increased global temperatures due to carbon-dioxide (CO₂) and other greenhouse gases (GHGs) being emitted into the atmosphere. It is traceable mostly to anthropogenic factors such as burning of fossil fuel in the process of urbanization, land use and industrial growth (Raimi, Odubo, & Omidiji, 2021).

In response to this, the United Nations Framework Convention on Climate Change (UNFCCC, 2017) noted that additional proportion of world's population would progressively be susceptible to climate-induced disasters

such as floods. A warmer climate results in heavy rains combined with relative rise sea level mostly around shorelines thereby leading to occurrence of frequent extreme sea levels. Thus, climate change, over times, could significantly and progressively increase flood risk (Oshodi, 2013). The resultant effect of this could be seen when flood erupt due to any slight rainfall in some states.

Hence, the most recurring disaster in the country is flood as a result of increased rainfall durations and intensities in the last thirty years (Enete, 2016). The flooding experience of 2012 which affected 78%, of the states of the federation was an instance. This incident left thousands of people homeless and dead with destruction of properties quantified to the tune of billions of naira. Therefore, adaptation plans are highly required to stem the tide of ever rising climate change impacts such as accidental deaths and sustenance of serious injuries and destruction of means of livelihoods, property, environmental quality and future prosperity. Also, flooding caused by climate change would impact negatively on the built environment of most developing nations (Ideki & Weli, 2019). Thus, urgent adaptation and mitigation measures needed for coping with climate variability and its effects should be put in place to address the worrisome flooding experiences in many developing countries.

Climate change is a rise in average global temperature caused by both natural events and human activities. In a bad to grasp the concept of climate, it is needful to other consider the global earth system despite the local climate experience of humans and living being. Raimi, Odubo, and Omidiji (2021) observed that it entailed “understanding how air, land, oceans, snow and ice, and all living things contribute to and interact with the global climate”. The Intergovernmental Panel on Climate Change (2017) commonly described the complex collection of relationship as the climate system. The resultant energy transfer and transformations within the earth’s surface atmosphere and the oceans manifest inform of earth’s climate parameters such as wind, rain, clouds, temperature and so on. Over a period of time, earth’s climate maintains stability largely due to balanced energy transfer i.e. equality of received energy and lost energy.

Climate change is occasioned by the atmospheric condition due to carbon-dioxide and other greenhouse gases built-up in the atmosphere traceable mostly to anthropogenic factors like urbanization, industrial growth and land use. There was plethora of evidences emanating from IPCC and notable scientific bodies in the industrialized climes affirming global temperature increase caused majorly by accumulation of anthropogenic greenhouse gases through greenhouse effect beginning from the middle of 21st century. It has also been affirmed that a small warming effect is attributed natural phenomenon e.g. solar variation) warning effect since pre-industrial period to 1950 and the setting in of reverse cooling effect from the period. Hence, human-induced change and changes caused by external forcing are termed ‘climate change’ and ‘climate variability’ respectively by the United Nations.

LITERATURE REVIEW

1. Country Vulnerability to Climate Change: A Comparative Perspective

Climate change is a global phenomenon with effects that differ in equal measure across the globe. The African countries most at risk include South Africa, Nigeria, Angola, and Ghana due to geographical, economic and social circumstances unique to them (Oramah, Olsen, Kenneth, & Pettersen, 2022). These vices point out the fact that climate risks are interconnectable thus require concerted action to curb them across the entire continent. For example, South Africa is subject to both droughts and floods, and climate change is likely to increase the likelihood of long-duration droughts. In 2018, Cape Town almost ran out of water and in 2021, all provinces experienced flooding (Rodina et al., 2024).

Global warming and climate change are leading to reduced access to water through an increasing scarcity of both in general, precipitation, and deterioration of conditions that support crop and animal production across the world in general, and these include agriculture, industry and domestic purposes (Ziervogel et al., 2022). In addition, South Africa faces hydro meteorological disasters including floods, heat waves and droughts that interfere with lives and income generating activities. For instance, April 2022 floods in KwaZulu-Natal region of South Africa, over 460 people died and more than 40000 houses were destroyed (Climate Champions, 2022). These challenges are made worse by the threats to the biodiversity especially on areas of special conservation importance like the Cape Floristic Region.

Like the case of Angola, over and large this country heavily relies on agriculture and natural resources and this makes the country vulnerable to climate related challenges. Droughts which have become frequent due to changes in climate productivity in agriculture, is greatly affected thus causing food and water scarcity. Dryness in Angola in 2019 when southern regional inadequate rainfall impacted on 1.58 million people with high crop and livestock casualties (World Bank, 2020). Similarly, the lack for infrastructure increases the impact of floods that disrupts the urban and rural areas in their functioning. Sea level rise resulting in coastal erosion has become a major factor that poses a threat to this country’s coastal populations as well as other related ecosystems; that demonstrates how climate change affect human and wildlife existence.

Food insecurity is an emergent problem in sub-Saharan Africa. By 2022, more than one-hundred and twenty-three million individuals or 12% of the region's population were expected to be in Phase 3 acutely food insecure and experience high levels of malnutrition and food consumption poverty. Based on this analysis, the African continent has the second largest population affected by food insecurity, behind only Asia, and the prevalence rate rose from 17.7 % (203.5 million people) in 2014 to 25.9 % (346.6 million people) in 2020. Of all African regions, West Africa is the worst hit as food insecurity increased from 8.6 per cent in 2014 to 28.8 per cent (or 115.7 million people) in 2020 (Otekunrin et al., 2021; FAO et al., 2021).

Climate change complicates several aspects of living; food security, status of the environment, and poverty. Climate change is among the key causes of increase in hunger in the world (FAO et al., 2018). The concept of food security as the state in which there is physical, social and timely access to adequate, safe, and nutritious food to meet an active and healthy life entails SDG 2: Zero Hunger and SDG 3: Good Health and Well-being (FAO, 2009). However, the effort to attain FNS is still out of reach for most households across sub-Saharan Africa due to the failure of current food systems (Capone et al., 2019; El Bilali et al., 2020). Sub-Saharan Africa contains about a third of the global drought frequency, which puts serious pressure on food accessibility. In eastern Africa particularly, Ethiopia and Kenya the community is experiencing one of the most devastating droughts with in the recent past while Angola for the fifth year in a row is being plagued by drought. These disasters more than anything else lead to a drastic increase of food insecurity. For instance, in Ethiopia, Malawi, Mali, Niger, and Tanzania food insecurity increases by 5- 20 percent after each drought or flood disaster (Climate Change and Food Security in Sub-Saharan Africa. (2022).

Migration of pests including insects and weed seeds to sub-Saharan Africa have been on the increase due to the increasing temperatures and water levels. The last two waves of desert locust upsurge in Ethiopia, Kenya and Somalia that occurred in 2019-2020 attacked 1.25 million hectares of the cropped land and increased the financial requirement for the sub sector by at least US \$70 million (Mullié et al., 2023). At the same time marine pollution is causing loss of habitats with reduced fish, while abnormal levels of acidity and temperatures make it difficult for ecosystems to survive, the quantity of available green area for livestock reduce, together with the reproductive productivity of animals.

The Horn of Africa's drought persists and has led to the death of more than 1.5 million livestock and decreased cereal yields. According to projection, by 2050, the actual fish production in Coastal West Africa will be below 21%, equivalent to fifty percent reduction of all the fisheries related employments (Lam et al., 2012). Likewise, the yields are also expected to decline by almost a third in the Lake Tanganyika fish stocks and the negative effects can be next felt in the east African countries including Burundi, the Democratic Republic of Congo, Tanzania and Zambia (Sarvala et al., 2006). This paper has highlighted that these interruptions increase the likelihood of the climate change negative effects hence the need for more effective coping mechanisms for food security loss in Africa.

2. Climate Action Plan for African States

Climate change has grown to receive much attention as a topical issue, and African states have also been especially concerned with combating its negative impact. Africa, which remains the least emitter of greenhouse gases in the world, is most affected by the impacts of climate change through droughts, floods, prolonged droughts, food shortage, water scarcity and loss of bio-diversity and addressing climate change negative impacts requires collaborative efforts of the Parties due to the trans-boundary nature of the environmental challenge. Therefore, African countries have prepared strategic climate response strategies to reduce such effects and facilitate sustainable improvement.

The African Development Bank Group has led the pack among all the development banks in terms of its engagement in addressing climate change on the continent. Their plan focuses on the development of climate change adaptive and low carbon economy. These huge financial needs, the African Development Bank Group suggests, Africa will require about \$500 billion climate finance by 2030 only (African Development Bank, 2019). This plan focuses on three main pillars: adaptation, mitigation and resilience. There are interventions meant to enhance resilience in African countries through successful adaptation while there are those that seek to decrease emission through green energy and sustainable land management. It entails increasing infrastructure and community systems for the management and recovery from impacts of climate related shocks (Moulo, 2024).

The strategy for combating climate change has also been developed by the African Union (AU). The AU's Climate Change and Resilient Development Strategy and Action Plan for 2022-2032 will help this goal to focus on inclusive growth and economic development through closer cooperation between AU member states. Thus, it emphasizes the need to mainstream climate change in national plans and Programmes for Development. It also stresses the idea of active participation of citizens, to which means all citizens and especially the most vulnerable

ones, in the case of climate change. Through mainly the regional integration satisfied the AU's vision to tackle climate issues efficiently through the bolstered zeal of the continent (African Union, 2023).

The Southern African Development Community has unveiled Climate Change Strategy and Action Plan where the objectives and measures for reducing impacts of climate change have been coordinated throughout the SADC region. The sectors involved in this plan are agricultural, water, biological, and health sectors or systems. It seeks to coordinate regional and national approaches and to ensure that co-operation among Member States is achieved. Climate change mitigation and adaptation form a core area of focus for the strategy with special emphasis on climate-smart agriculture, water and sustainable use of water resources, and especially conservation of biological diversity. Thus, in aiming at strengthening climate change resilience of both natural and human systems, SADC has taken a comprehensive approach (SADC, 2020).

3. African Union Climate Change

The African Union (AU) has been relatively more responsive to the emerging issue of climate change, since it affects African countries and their development, as well as, the environmental parameters. Among them is the African Union Climate Change and Resilient Development Strategy and Action Plan for 2022-2032 to achieve transformative change towards Inclusive and Sustainable Development and promote the Pan Africanism African renaissance (African Union, 2023). This strategy depends on including climate change adaptation within country development agendas/plans, and coordinating collaborations with global actors, including the United Nations Framework Convention on Climate Change (UNFCCC) which provides funds and knowledge essential for implementation (UNFCCC, n.d).

Another great development in the AU climate plan was the Africa Climate Summit (ACS) that was hosted in Nairobi, Kenya in September, 2023 with the focus on "accelerating Green Growth and Climate Finance for Africa and the World". The event involved over twenty African nations and many global partners and showcased various solutions including renewable energy together with sustainable farming (African Union, 2023). The outcome of the meeting was a document called the Nairobi Declaration on Green Growth and Climate Finance Solutions which urged for a global increase in funding for African based climate programs by tenfold with significant devotion to the utilization of renewable energy, carbon markets, and climate resilient built assets.

Complementing these efforts, the Continental Green Recovery Action Plan (2021–2027) targets five strategic areas: climate finance, transition to renewable energy sources, conservation of biological diversity, land management and climate change Agriculture. A good achievement of this plan is the increase in the Great Green Wall Initiative that is another reformative project of reducing seven countries of Sahel region's surface area from desertification and increase food production by constructing 100 million hectares of land by 2030. It further supports the African Renewable Energy Initiative (AREI) launched to ideally ensure Africa provide 300 GW of renewable power by 2030 establishing the continent as the focal point of the transition to clean energy (AREI - Africa Renewable Energy Initiative - Official Website, n.d.).

It embraces climate change mitigation and also enhancement of its capacity besides promoting regional integration. Located in Addis Ababa, The African Climate Policy Centre (ACPC) affiliated to the Economic Commission for Africa (ECA) has taken up the role of one of the leading climate change research, formulating climate change policy and climate modelling body (African Union, 2023). In the recent past, the ACPC has arranged forums to empower the policymakers with adequate techniques on implementation of climate change into development plans. Significantly, the ACPC in cooperation with the World Bank unveiled Climate Resilience Investment Framework and the goal was to assist member states to mobilise private capital for climate infrastructure. It, therefore, come as no surprise that other innovative financial mechanisms also find a place in the AU's working.

The African Risk Capacity (ARC) is an insurance solution of continental dimension that protects sovereigns against the socio-economic losses arising from natural disasters through weather-indexed insurance, with capital funding more than \$120 million since it was founded, it has protected over 30 million people from natural disasters including droughts and floods (African Union, 2023). AU utilizes an array of stakeholders alongside key partnerships with international bodies inclusive of the African Development Bank (AfDB) that has committed of \$25 billion towards climate finance within the 2020 to 2025 financial year. Partnerships like these can enact numerous positive changes, the Desert to Power Program that seeks to bring solar power to 250 million people in the Sahel Region as an example showcasing the realistic positive impacts (African Development Bank, 2019).

4. Impacts of Climate Change on Developing Countries in Africa

Upon using the emission reduction scenarios that would limit the global temperature increase to 1.5°C as the worldwide carbon budget gets narrower, the outcomes suggest that Africa is the most vulnerable continent to

climate change effects (William et al., 2023). Africans have the smallest cumulative contribution to climate change and emit the least part per capita of greenhouse gases, but suffer the most when climate related disasters occur. This is not only about sustainable dramatic risks to its real and potential gross domestic product, properties, tangible and intangible structures, water and foods, population and their well-being, food and food safety.

These challenges have the potential to undo the few developmental gains recorded across Africa, further entrenching millions of others in poverty. Sub-Saharan Africa, for instance, which has 95% of the world's rain-fed agricultural systems, is highly vulnerable to climate change (Emediegwu, Wossink & Hall, 2022). Approximately half of the country's income and employment is derived from agriculture, fishing, and herding, all of which may be adversely affected by climate change. As a result, climate change related shocks lead to losses in income, increase food insecurity and lock communities into poverty. Out of the ten world's most climate vulnerable countries, seven of them are in Africa, four of which of that were the most severely affected countries in 2015, these include Mozambique, Malawi, Ghana, and Madagascar (African Development Bank, 2019).

Extreme Weather Events and Infrastructure Damage

Some of the obvious and the most direct impacts of climate change in Africa are the rising incidence and severity of exotic weather conditions. Cyclones, floods and heatwaves have been a problem in the recent past. Take for instance, cyclone Idai which happened in Mozambique early this year; affected 90% of the infrastructure of Beira (ReliefWeb, 2019). When the WFP had declared it a level 3 emergency, on a par with Yemen and Syria crises. Mozambique's Beira city, which is crucial to its energy sectors as well as the global natural gas industry, was severely hit, as was the entire continent (Emediegwu, Wossink & Hall, 2022). Such calamities demonstrate how other global crises harming developing nations with weak capacities to protect their structures from climate issues affect the world.

Agricultural Vulnerability and Food Security

Agriculture is central to the African economy; 95 % of them rely on rain-fed systems more so in the Sub-Saharan region. Traversing of the region implies that the area is very sensitive to change in rainfall by and large, and other aspects of harsh and dramatic climate change including instances of drought and floods. Hazardous climate change affects the agricultural sub-sector that is central to modern food security and economic profitability, and sustenance. Crop production; livestock; and fisheries products are affected in the process and this has numerous effects such as reduction in income, increased food vulnerability. Countries such as Mozambique, Malawi, Ghana, and Madagascar, which depend heavily on agriculture, are particularly vulnerable to poverty and other social and economic vices when agricultural productivity is low (Oramah, Olsen, Kenneth, & Pettersen, 2022). All these disruptions affect public health systems, livelihood and national economy in a dovetailed manner.

Health Impacts and Migration

The impact of climate change on health in Africa is massive. Greater levels of temperature as well as heat waves have resulted in more susceptibilities to become affected by non-fatal heat illness, heat syncope, heat exhaustion and other health complications relating to heat such as heat stroke and cardiovascular diseases. Also, the numbers of cholera and malaria have increased due to floods and drought coupled with poor health facility infrastructure in the affected areas. Another emerging aspect is displacement due to climate change, and the UN says millions of Africans have had to flee their homes because of climate-related disasters (Emediegwu, Wossink & Hall, 2022).

Most end up living in cities or neighbouring countries, increasing pressure on stretched health, education, and social services, increasing social tension, and escalating resource use competition.

Economic and Financial Impacts

Climate change cost Africa heinously in the economic aspect. Governments find it hard to implement adaptation costly measures as UNEP has estimated that expenses could reach \$50 billion every year by 2050, provided global temperature should not rise beyond 2 degrees Celsius above pre-industrial level. Africa will need \$3 trillion or more to achieve the intensity of Paris Agreement by 2030 (African Development Bank, 2019). Nevertheless, observing African countries' climate action plan, many of them require adequate financial and technical assistance and capacity building from the developed nations. These deficits in funding underscore why it is vital for countries of the world to come in their support for the Africa nations to address Climate change impacts

and secure the future development (UNFCCC, 2023). Should there be no improved assistance, the advancement of the continent to sustainable development could still be affected by impacts of climate change.

5. Governance of Climate Change and Flooding in Africa

The UN Framework Convention on Climate Change (UNFCCC) formalised global climate regulation in 1992. The need for global environmental protection through collective action motivated officials in creating this framework which addressed problems emerging from global environmental change (GEC). The 1992 World Summit on Sustainable Development presented itself through its Rio Earth Summit foundation document to demonstrate the shared commitment between nations for Earth's destiny along with environment concerns that affect all nations. Multiple legally binding agreements can emerge through this system which covers subjects including funding assignment and adaptation steps and mitigating actions and technology transfer methods and future global climate changes. Researchers must document the complete effects of changing global climate governance while examining its influence on future African economies and development targets for public servants from various levels.

Africa is increasingly vulnerable to the impacts of climate change, particularly flooding, which poses significant risks to communities, infrastructure, and the economy. The African government has developed a range of policies, strategies, and institutional frameworks to address climate change and flooding, aimed at both mitigating environmental impacts and adapting to the changing climate. Environment constitutes a critical factor for human existence. It is a platform on which human activities are based for contributions to the economic growth and development of a country. Hence, any form of threat to the environment is a threat to human existence. This underscores the fact that making peace with our planetary environment is a fundamental condition for us to fully make 'peace' (Emediegwu, Wossink & Hall, 2022).

The floodplain management review of the Annual Facilities Programme (AFP) predicted that by the year 2050, over 300 million people will face annual coastline flooding due to climate change and that more than two-thirds of the populations of China, Bangladesh, India, Vietnam, Indonesia and Thailand are at risk (AFP, 2020).

Adequate support for African state and non-state agents must be strengthened to boost the African influence in international climate management processes. Global Climate Governance (GCG) emerged through these particular developments. African interests can be integrated better into global climate governance through the existing concrete opportunities. The work stream sets out practical steps to support sustainable development processes which strengthen themselves mutually.

Through its global framework climate governance established vital conditions for African leaders to construct both national and regional climate governance systems. The production of African climate policies by governments has not led to significant implementation nor organic climate change response capacity development within their institutions. Multiple countries worldwide now embrace climate response through budgetary and organizational commitments to climate policy and climate-proofing procedures throughout national development initiatives.

The ongoing support for climate governance throughout Africa should focus on establishing sustainable development which incorporates climate strategies in all frameworks. Thus, this program seek to identify opportunities that exist in existing national policy frameworks to integrate climate change into sustainable development policies and actions, support actions that can demonstrate the viability of such opportunities (such as appropriate technology policies, reforming budgetary process to take account of climate change impacts, integration of climate change considerations into major sectoral policies such as agriculture, transport, urban planning, construction and so on. The evidence shows that Africa makes the smallest climate warming contribution yet suffers the most from climate-related changes while having minimal climate resilience capabilities. Africa's indigenous development potential faces reduction through climate change effects which simultaneously decreases the viability of marginal communities' economic subsistence alongside establishing new social development barriers for African populations.

The focus aims to enhance climate impact understanding across all social and economic development aspects on the continent followed by information packaging for policy processes and assistance in developing climate strategies that boost adaptation initiatives and impact reduction. During the initial quarter specific interventions will be created then working papers and policy briefs will be developed before bringing policymakers from targeted countries to start building climate strategies.

Human existence faces a severe environment crisis from climate changes that produce extensive detrimental effects across multiple dimensions. Environmental changes originate mostly from nature together with human-made elements (anthropogenic factors). Atmospheric climate change results from global temperature elevation because human activities transmit CO₂ alongside other GHGs through the atmosphere. Reviewable evidence links these changes primarily to human activities like fossil fuel burning occurring during urban development and land management and industrial advancement (Emediegwu, Wossink & Hall, 2022).

6. National Climate Change Response Policy (NCCRP)

The state-level climate change strategy is anchored by the National Climate Change Response Policy (NCCRP) that was adopted in 2011. It also responds to actions intended to lower the emission of Green House gases and to increase the Climate Change vulnerabilities. It aims at the sustainable development and/or brings climate change factors into consideration in the development of a country's development plan. The key objectives of the NCCRP are to decrease energy intensity, increase the usage of renewable energy and encourage the deployment of low carbon technologies (South Africa; Department of Environmental Affairs, 2011). In addition, it lays emphasis on combating climate change to reduce vulnerability and risks associated with damages due to climate change including flooding by enhancing resilience through climate change adaptation by developing infrastructure, water management and disaster risk management.

Climate Change Bill

Another policy instrument is the Climate Change Bill, currently approved by the South African Cabinet. This bill seeks to put climate change regulation on the statute book so as to ensure that climate change issues are legally binding. It outlines the suite of instruments to fulfilling South Africa's global climate objectives, including those in the Paris Accord and creates a climate change compliance and accountability mechanism (UNFCCC, 2023). The bill provides for a climate change response plan, to be prepared and implemented, which will involve elements of risk management of climate change effects such as flooding, in the flood prone areas.

Presidential Climate Commission

In order to facilitate the functional governance of climate change the government of South Africa has established the Presidential Climate Commission. Another key structure of the CN has assigned responsibility for coordination of the country's climate change agenda, provision of advice on climate related issues, and engaging relevant actors. This way, it creates an intersectoral space for the coordination of climate change activities and initiatives of all participants of the socioeconomic process, including the state, business, civil society, and academic institutions. The commission is useful for climate change induced flooding as its co-ordinates policies so that policies are aligned vertically across levels of government and horizontally across sectors (Swilling & Annecke, 2012).

Low Emissions Development Strategy and National Climate Change Adaptation Strategy

South Africa's Low Emissions Development Strategy and National Climate Change Adaptation Strategy are two crucial approaches of climate governance in South Africa. The Low Emissions Development Strategy seeks to achieve the goals of decreasing emissions in the country while supporting economic growth which includes the use of renewable energy efficiency and sustainable agriculture (Emediegwu, Wossink & Hall, 2022). The National Climate Change Adaptation Strategy outlines directions for how climate change can be addressed especially on issues that affect areas of flooding. This strategy focuses on efforts to build and strengthen disaster preparedness, early warning system and systems that would mitigate impact of climate on infrastructure (Ziervogel et al., 2014).

Carbon Tax and Just Transition Framework

South Africa has also incorporated a carbon tax to curb absolute emissions of greenhouse gases, and encourage more clean energy generation. Imposed in the fiscal year 2019 – 2020, the tax is in line with the international trends for emissions reduction and promotes green leather enterprises (Carbon Tax Act, 2019). Besides, there is the Just Transition Framework and Implementation Plan which have been put in place to ensure that future changes are made in a structure are fair for those who will be affected. This framework considers costs and benefits of climate change and flooding on social and economic aspects of society and helps in the process of helping the most endangered communities to adapt to the new conditions of a more sustainable future (Swilling & Annecke, 2012).

METHODOLOGY

The study employed a qualitative research design which was based on desktop review and policy analysis methods. The main aim is to critically examine the trajectory implantation and systemic challenges of Climate Change and Flooding Governance in Africa. Data for the study were collected from secondary sources, including peer-reviewed journal articles, books, and theses focused governance policy and climate change policy in some

African States. This methodological approach enables a holistic evaluation of Africa policy climate change and identifies actionable pathways for strengthening policy design and institutional performance through governance actions.

THEORETICAL FRAMEWORK

This study adopted resilience theory as the framework of analysis because it was relevant and explained the conditions/factors informed the choice of strategies for climatic change mitigating and flood management, their effectiveness and inherent implementation challenges which constituted the focus of the study.

The resilience theory is an environmental and ecological theory “that attempts to explain stressing the capacity to absorb recurrent hazard impacts so as to maintain fundamental structures, processes, identity, and feedbacks. The theory was propounded by Holling in 1973 to describe observed ecosystem dynamics. He defined resilience as the ability of a system to absorb disturbances and still persist.

To Acheampong (2019), resilience is the capacity to prevent or mitigate losses and then, if damage does occur, to maintain normal living conditions as far as possible, and to manage recovery from the impacts. From this definition, it could be deduced that resilience is that ability to prevent environmental damages or at worst to maintain living conditions of a particular area. To Alderman, Turner and Tong (2019), it is the capability of withstanding severe shock without incurring either immediate chaos or permanent damage, and of recovering from the impacts of natural hazards. To these authors, being resilient is the ability of a particular settlement to endure and bounce back after natural disaster. Also, to Raimi, Odubo, and Omidiji, (2021), All phases of disaster management including pre-event planning together with warning strategies and emergency processes and post-disaster rebuilding belong to the resilience concept. Cities known as "urban" possess the capacity to swiftly bounce back from major as well as minor emergencies. The ability for an area to survive a disaster includes various precautions which can be implemented beforehand or in the aftermath of the disaster.

According to the theory the city must demonstrate flood tolerance along with organizational abilities when facing physical harm and socioeconomic disturbance to prevent mortality and bodily injuries while sustaining its present economic state. As per the resilience theory flood hazard management needs to shift its emphasis from stability maintenance to resilience development for future hazards. Flooding occurs naturally within urban ecosystems thus resilience serves as the cornerstone rather than flood resistance or pre-disaster reconstruction projects which represent two elements leading toward stability. Survival tendencies make up the concept of resilience since survival is the end goal.

CONCLUSION

The paper examined international climate change policies regarding governance of climate mitigation and flooding in Africa nations. African states serve as victims of climate change consequences according to research that explores barriers that prevent strategy implementation. Since the early 1990s climate change rose to become one of the most important development concerns because scientists predicted its harmful effects on biodiversity alongside rural livelihoods and national along with global economies. Climate change remains a vital concern for African nations though their agreement to global environmental solutions possibly differs from each other.

The paper persists in ravaging the state because climate change problems remain unresolved despite the obstacles which prevented successful implementation of strategies in Africa. Climate governance extends past climate change science to evaluate social and economic and political aspects which relate to climate change effects. The analysis utilizes both sustainable development and rights frameworks to examine worldwide political finance mechanisms for obtaining environmental transformation on local and national and international scales.

POLICY RECOMMENDATIONS

The interlocked the issues surrounding Governance of Climate Change Mitigation and Flooding in Africa alongside with the climate change, local energy crisis, and flooding are presenting substantial risks to the country's economic progress, public health, and general societal welfare. Hence, the following policy recommendations delineate a comprehensive methodology to tackle these urgent environmental challenges:

- a) Organizations need to develop effective tools to counter the climate change effects as part of their first priority for capacity strengthening.
- b) A combination of appropriate useful designs along with institutional interventions should transition victims from this painful state toward developing adaptive capacity when floods occur in African states.
- c) The implementation of specific measures requiring financial support alongside institutional development alongside human resources needs certainty to be successful at international climate conferences to affect

the global agreement which will form strategic plans for national regional and global development and poverty reduction efforts.

- a) The establishment of capacity building instruments together with financial and technological transfer systems offers African countries their principal opportunities to participate effectively.
- b) The evaluation should include multiple quantitative indicators such as document submissions combined with delegation attendee numbers and qualitative assessment methods to prove increased participation.
- c) The African Group needs to adopt more responsibility in demanding developed-to-developing country relations while encouraging public instead of private support for Africa's climate change initiatives.
- d) Multiple negotiations will occur to examine the seven core elements that consist of finance alongside adaptation and mitigation together with cooperation and support alongside transparency of action and support as well as technology development and capacity building initiatives for African nations.
- e) Ineffectual participation in international climate change negotiations proved difficult for Africans due to their weak participation in global systems combined with insufficient capacities.

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Data Availability

No data was used for the research described in the article.

Disclosure Statement

No potential conflict of interest was reported by the authors.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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