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GLOBAL RESOLUTIONS ON CLIMATE CHANGE CONTROL AND THE EMERGING EFFORTS OF AFRICAN NATIONS

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Abstract

Climate change (CC) is undoubtedly a worldwide menace affecting both the developed and developing nations alike. The global response is to mitigate and adapt to this challenge as captured in an array of resolutions. Still, there are variations in these efforts' efficacy, especially in Africa. Using a desktop/review method, this study carefully examines current global resolutions on CC control, assessing its underlying strengths and weaknesses. It also explores the emerging efforts that African countries are making to address CC, highlighting innovative measures and lingering challenges. Results show that international collaboration is anchored by global resolutions, most notably the Paris Agreement, which establishes ambitious targets and provides a framework for national adaptation. However, a closer look finds barriers, such as insufficient funding and technology, inconsistent fulfilment of commitments, and a lack of unified ambition to reach global climate targets. On the other hand, African nations, which face disparate impacts and limited resources, appear to be actively involved in sustainable development. These countries demonstrate resiliency and commitment in anything from the adoption of renewable energy to climate-smart agriculture. Obstacles such as scarce resources, limited technology, and the need to further develop capabilities highlight the necessity of more international aid. The study recommends a comprehensive strategy that will strengthen African and global responses to CC, with a focus on sustainable development, equity, and cooperation. The ethical requirement for a peaceful and resilient global future is put out as envisioning an empowered Africa through increased financial commitments and streamlined technology transfer, among others.

Keywords: Climate change, Global resolutions, Paris Agreement, African nations, Sustainable development

1. 1. Introduction

At the crossroads of environmental, economic, and social issues, climate change (CC) is an unprecedented global crisis that demands immediate attention and coordinated response (Bustamante et al., 2019; Friedman et al., 2019; Cole & Dodds, 2020; Chapman & Ahmed, 2021; Sophina et al., 2021; Kolawole & Okonkwo, 2022; Mandal, 2022; Oluwagbemi et al., 2022; Intergovernmental Panel on Climate Change (IPCC), 2023; Khine & Langkulsen, 2023;

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World Health Organization (WHO), 2023). Overwhelmingly, scientists agree that human activities—most notably, the burning of fossil fuels and unchecked deforestation—are to blame for the worsening climate disaster (Haider, 2019; Sandu et al, 2019; Huckelba & Lange, 2020). Due to these activities, greenhouse gas (GHG) concentrations have significantly increased, speeding up the planet's warming process and having a domino effect on economies, ecosystems, and human well-being (Fawzy et al., 2020). Rising sea levels, ecological disturbance, an increase in the frequency and intensity of extreme weather events, and severe threats to the world's food and water security are some of the obvious consequences (Fawzy et al., 2020; Mandal, 2022).

In response to CC, the international community has developed key agreements like the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol (KP), and the Paris Agreement (PA) to coordinate global efforts in reducing GHG emissions and adapting to climate changes (Bulkeley & Moser, 2007; Chasek, 2011; Wu, 2012; Keohane & Victor, 2016; Karim et al., 2018; Marangoni et al., 2021). These frameworks outline shared responsibilities and establish the foundation for collective action against CC.

Despite their low global GHG emissions, African nations face significant CC impacts, including increased floods, droughts, and extreme weather that threaten their water resources, agriculture, and economic stability (Fields, 2005; Brown & Crawford, 2008; Hoffman & Vogel, 2008; Kula et al., 2013; Asafu-Adjaye, 2014; Meadows, 2006; Gonzalez-Sanchez et al., 2019; Overland et al., 2021; Atwoli et al., 2022). Proactively, they have engaged in global climate efforts, understanding their unique vulnerabilities and the interconnected nature of CC (Bauer & Scholz, 2010; Brown et al., 2013; Winkler, 2018; Friedman et al., 2019; Oluwagbemi et al., 2022; Khine & Langkulsen, 2023; Atwoli et al., 2022). This study examines international CC mitigation agreements and African initiatives, assessing global climate governance and suggesting resilient, sustainable strategies.

2. 2. Methodology

Using a desktop/review methodology, this study examines global resolutions on CC control and the emerging efforts of African nations through the analysis and synthesis of existing literature, documents, and reports. The data utilized for this literature study was

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gathered from a number of sources, including publications from credible international organizations, government reports, policy documents, academic journals, and conference proceedings. Pertinent databases, including PubMed, Google Scholar, Scopus, Web of Science, and databases unique to African studies and CC were searched for relevant articles and reports. For policy documents and reports, the official websites of international organizations like the World Bank, African Union, and UNFCCC were also consulted.

The study covered only peer-reviewed papers, reports, and articles that were published in English within the last 20 years, from 2005 to the present. Studies on international agreements on CC mitigation, such as the KP, the PA, and the UNFCCC, as well as African countries' initiatives and efforts in this regard, were taken into consideration for inclusion. Excluded studies were those published in languages other than English, duplicates, and those not directly relevant to the subject.

Data obtained were analyzed topically. Key themes found in the literature were systematically reviewed and synthesized; these included global CC resolutions, the strengths and weaknesses of these resolutions, emerging efforts of African nations, challenges faced by African nations, and recommendations for strengthening responses. To identify gaps, challenges, and opportunities, a comparative analysis was also carried out between the efforts of African nations and global resolutions.

3. 3. Results and Discussion of Findings

3.1 Global Resolutions on Climate Change Control: A Crucial Framework

United Nations Framework Convention on Climate Change

The complex web of issues presented by CC required the creation of a fundamental framework for international cooperation, which resulted in the UNFCCC's founding. This treaty, which dates back to the Rio Earth Summit in 1992, is the cornerstone of global efforts to combat CC (Dawson & Spannagle, 2008; Galli, 2012; Happaerts, 2015; Rhodes, 2016; Pereira & Viola, 2020). Fundamentally, the UNFCCC offers an all-encompassing forum for talks, agreements, and coordinated efforts to tackle the growing danger posed by GHG emissions (Galli, 2012; Happaerts, 2015; Rhodes, 2016). The UNFCCC seeks to prevent hazardous disruption of the delicate balance of the climate system by establishing a framework for stabilizing concentrations of these gases (Pereira & Viola, 2020).

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3.2 The Kyoto Protocol

The KP, a historic agreement under the UNFCCC that sought to cut GHG emissions from industrialized countries by 5.2% below 1990 levels by 2012, represents a substantial advancement in global climate policy (Lau et al., 2009). When it was first announced in 1997, it was an early attempt to force industrialized countries to reduce their emissions in a way that would be legally enforceable (Babiker, 2005; Soytaş & Sari, 2006; Byrne et al., 2007; Chlela et al., 2009; Gavrilova et al., 2010). Still, there were some issues with the protocol. Its exclusivity, focusing only on emissions from established nations, left out the growing contributions from emerging economies, creating a crucial void in the changing global emissions picture (Gavrilova et al., 2010). Furthermore, the protocol's enforcement procedures were ineffective, which made it difficult to carry out its mandates effectively (Vlachou & Konstantinidis, 2010).

3.3 The Paris Agreement and Subsequent Conference of Parties (COP) Meetings

With the adoption of the PA in 2015, the international community signaled a revolutionary change in the global governance of CC in response to the faults and limitations of the KP (Rogelj & Knutti, 2016; Held & Roger, 2018). This historic agreement successfully mobilized all countries—developed and developing—to commit to bold actions aimed at reversing the trend of global warming, marking a turning point in the history of climate action (Rhodes, 2016; Lesnikowski et al., 2017). The agreement emphasized a greater sense of urgency and a commitment to more rigorous climate targets by emphasizing the necessity of keeping temperature increases well below 2 °C by the year 2100, with a preferred aim of 1.5 °C (Rogelj et al., 2016; Bustamante et al., 2019; Fawzy et al., 2020; Ali et al., 2021; Hickmann et al., 2022). The global climate agenda has been progressively strengthened and modified by the COP meetings that followed most notably COP21 in 2015, COP24 in 2018, COP26 in 2021, and COP28 in 2023 respectively.

The Nationally Determined Contributions (NDCs) are a cornerstone of the PA, providing a flexible framework that allows countries to set their own emission reduction targets based on individual circumstances (Bustamante et al., 2019; Hamilton et al., 2021; Fujimori et al., 2016; Rogelj et al., 2016). This adaptability acknowledges diverse economic conditions, developmental trajectories, and historical GHG contributions, enabling tailored strategies (Fragkos et al., 2018). The continuous refinement of NDCs reflects a growing global

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recognition of the urgency to enhance climate commitments and implement effective solutions. Furthermore, the PA includes provisions for financial and technological support, reinforcing global cooperation and helping developing nations. These mechanisms acknowledge historical imbalances in contributions to CC and foster a collaborative international environment aimed at sustainable and equitable development (Bustamante et al., 2019; Thompson, 2020). This cooperative framework is vital for global efforts to combat CC and achieve shared sustainable development goals.

3.4 Strengths and Limitations of Global Resolutions – The Paris Agreement

3.4.1 Strengths

3.4.1.1 Inclusive Nature

The PA's inclusiveness is one of its greatest advantages. The PA brings together countries from all over the world in an effort to fight CC, in contrast to its predecessor, the KP (Bodansky, 2016; Falkner, 2016; Rogelj et al., 2016; Held & Roger, 2018; Mor et al., 2023). Its inclusivity recognizes that combating CC is a global duty that requires contributions from all countries, regardless of their prior contributions to GHG emissions.

3.5 Differentiation and Flexibility through NDCs

A fundamental aspect of the PA is the Nationally NDCs mechanism. With this novel method, each participating nation is empowered to independently determine its goals for reducing emissions and create plans that are specific to its own conditions. NDCs incorporate the distinction between developed and poor countries, acknowledging past inequalities and differing abilities to tackle CC (Ari & Sari, 2017; Benveniste et al., 2018; Atteridge et al., 2019; Sfora, 2019). This adaptability makes it possible to respond to the various problems that CC presents in a more dynamic and adaptive manner.

3.6 Limitations

Current NDCs insufficient to achieve the Paris Agreement goals.

The countries' present ambitions don't match the level of collective ambition needed to accomplish the main objectives of the PA (Herz, 2019). A thorough examination of the submitted NDCs demonstrates a significant discrepancy between the pledged reductions and the required course to keep global warming well below 2 °C, with a 1.5 °C target being the

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ideal outcome (Matthews & Wynes, 2022; Dafnomilis et al., 2023). For the deal to be successful and to mitigate severe climate impacts, this gap must be closed.

3.7 Uneven Implementation and Enforcement

Uneven NDC implementation—developed countries occasionally falling short of their commitments—is another problem. This calls into doubt the PA's ability to hold countries responsible for their commitments. Stronger enforcement measures are required to guarantee that countries fulfill their obligations and take significant steps to combat CC, as highlighted by the absence of severe penalties for non-compliance (Raiser et al., 2022).

3.8 Insufficient Financial and Technological Support

Even while the PA has provisions for providing poor nations with financial and technological support, the actual aid given does not meet the demands as stated in their NDCs. Developing countries, especially those in Africa, find it difficult to adequately adapt to and lessen the effects of CC as a result of this deficiency. The attainment of the objectives of the PA will be more difficult in the absence of sufficient financial and technological support for these countries to adopt resilient and sustainable policies (DeConto et al., 2021; Djoundourian, 2021; Estrada & Botzen, 2021).

3.9 Emerging Efforts of African Nations

African countries, disproportionately affected by CC, demonstrate resilience by proactively addressing this global issue across industries, showcasing dedication to sustainable growth.

3.9.1 Renewable Energy Development

Despite economic challenges, African countries are rapidly transitioning to renewable energy, with increasing investments in geothermal, wind, and solar projects as sustainable alternatives to fossil fuels (Agyei-Sakyi et al., 2021; Lewis, 2021; Qudrat-Ullah & Nevo, 2021; Müller et al., 2021; Shihundu & Nyadera, 2022; Iorember & Yusoff, 2023). This shift enhances environmental preservation and energy security, aligning with global decarbonization efforts. Notable projects include Ethiopia's Grand Ethiopian Renaissance Dam and South Africa's Renewable Energy Independent Power Producer Procurement Program (Lewis, 2021; Shihundu & Nyadera, 2022).

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3.9.2 Climate-Smart Agriculture

African farmers are increasingly adopting climate-smart agricultural practices in response to agriculture's vulnerability to CC, blending modern and traditional methods to enhance food security and CC resilience (Amadu et al., 2020; Kichamu-Wachira et al., 2021; Zougmore et al., 2021; Ariom et al., 2022; Okolie et al., 2022). Techniques like agroforestry integrate trees into farms, improving carbon sequestration, sustainable land management, and biodiversity (Amadu et al., 2020; Kichamu-Wachira et al., 2021; Ariom et al., 2022; Okolie et al., 2022), thereby promoting agricultural resilience and sustainability across Africa.

3.9.3 Forest Conservation

Since forests store carbon dioxide, they are essential for reducing the effects of CC. African nations are taking action to preserve and rehabilitate their forests because they understand how important they are to controlling CC (Malunguja et al., 2020; Kinyili, 2023). These initiatives support both the preservation of biodiversity and the global carbon sequestration goals. An important part of the climate action strategies of many African countries is fighting deforestation and supporting afforestation and reforestation programs. Large-scale tree-planting initiatives have been started in nations like Ethiopia and Nigeria in an effort to absorb carbon dioxide and rehabilitate degraded soil.

3.9.4 The Great Green Wall Initiative

A prime example of cooperative efforts to counteract desertification and land degradation is the Great Green Wall program, which spans several African nations in the Sahel region (Ellison & Speranza, 2020; Mirzabaev et al., 2021; Bostancı, 2022; Mechiche-Alami et al., 2022). With the help of this large-scale project, Africa's commitment to addressing CC at the regional level will be demonstrated through the creation of a mosaic of lush, productive landscapes. Countries are collaborating to increase the resilience of ecosystems and communities through the planting of trees and the application of sustainable land management techniques.

3.9.5 Adaptation Planning

African countries are putting more and more effort into creating and carrying out national adaptation plans. These plans (Chami et al., 2022; Jamal, 2022; Zakari et al., 2022; Adamaagashi et al., 2023) are intended to identify CC vulnerabilities and propose ways to

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increase resilience in critical sectors such as agriculture, water resources, and infrastructure. Countries aim to reduce the effects of CC on their populations and ecosystems by giving adaptation first priority.

3.10 Challenges in African nations' efforts

Many African nations face a major obstacle in the form of scarce financial resources despite their strong commitment to taking action against CC (Mungai et al., 2021; Overland et al., 2021). Large financial commitments are necessary for the implementation of comprehensive climate action programs, and there is still a significant discrepancy between available resources and actual demands.

In addition, African nations frequently encounter technological barriers that prevent them from implementing cutting-edge approaches to climate mitigation and adaptation, such as climate-smart agriculture, renewable energy, and other areas (Ribeiro & Rodriguez, 2020; You et al., 2020; Senyolo et al., 2021).

Building capacity is also a cross-cutting need for African nations to effectively combat CC (Nautiyal & Klinsky, 2022; Adedini, 2023; Klinsky & Sagar, 2023). This entails enhancing capacities across a range of domains, such as data gathering and analysis, policy formulation, and climate research. Building capacity is essential to making well-informed decisions and carrying out climate action plans (Ifeanyi-obi et al., 2023; Klinsky & Sagar, 2023; Akanbi et al., 2022; Chapman et al., 2022; Nautiyal & Klinsky, 2022).

The governance of CC is made more challenging by political instability in several African countries (Faiyetole, 2019; Mikulewicz & Taylor, 2019; Clement et al., 2023).

4.1 Recommendations for Strengthening Responses: A Holistic Approach

Reaffirming Global Commitments

to effectively combat CC, international commitments must be reaffirmed and monitored. Evaluating COP outcomes and progress toward PA goals is vital (Hickmann et al., 2022; Asselt et al., 2023). Policies should ensure countries fulfill their obligations (Obergassel et al., 2022), while assessing and sustaining financial pledges is essential for continued support and addressing financing gaps (Omukuti et al., 2022; Ruppel & Dobers, 2022).

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4.2 Increase Financial Support

Developed nations must meet their PA obligations by enhancing funding to developing countries, utilizing innovative financing and meeting climate finance targets (Salazar & Katigbak, 2022; Mechiche-Alami et al., 2022; Ogunyiola et al., 2022). The Green Climate Fund is pivotal, requiring thorough analysis and improved governance to boost climate resilience in Africa (Mechiche-Alami et al., 2022; Salazar & Katigbak, 2022).

4.3 Facilitate Technology Transfer

Accelerating climate action in African nations involves facilitating clean technology transfer and ensuring their adaptation to local needs (Cheng, 2023; Zou et al., 2023). International collaboration should focus on establishing systems for technology transfer, enhancing accessibility, and fostering innovation through joint research and development (Dauda et al., 2021; Cheng, 2023; Zou et al., 2023). Establishing technology transfer centers and knowledge-sharing platforms can speed up expertise sharing and technology adoption.

4.4 Promote Equity and Differentiation

Global climate action should be grounded in justice, recognizing the distinct responsibilities and historical accountability of industrialized nations (Shapovalova, 2021; Fitzgerald, 2022). Addressing the specific vulnerabilities of developing nations, particularly in Africa, is essential. The equitable distribution of obligations and benefits in climate agreements requires on-going evaluation and adjustment to ensure fairness (Coggins et al., 2021; Ganti et al., 2021; Fitzgerald, 2022). This approach can build cooperation and trust internationally.

4.5 Support Adaptation and Resilience Building

For the most vulnerable countries, especially those in Africa, putting an emphasis on adaptation and resilience building is essential (Beauchamp et al., 2021; Cobbinah, 2021; Ngouhou & Nchofoung, 2021). Given the variety of problems that African nations face, international collaboration ought to center on supporting the creation and execution of strong adaptation plans.

4.6 Learning from Successful Initiatives

Analyzing effective adaptation programs across various African regions yields insightful information. The creation of focused strategies and interventions that promote resilience at the local and national levels can be influenced by an understanding of the elements that have

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contributed to their success. For a more comprehensive and successful approach, this entails promoting international knowledge exchange and incorporating indigenous knowledge into adaptation plans (Beauchamp et al., 2021; Mbah et al., 2021; Nyadzi, 2021; Zvobgo et al., 2021; Muchaku et al., 2023; Phoobane & Masinde, 2023).

4.7 Strengthen Capacity Building

The effective execution of climate action plans depends on strengthening African countries' ability to address CC (Olutola, 2021; Ziervogel et al., 2021). Initiatives that empower African nations through training, knowledge sharing, and institutional development should be given top priority in international cooperation.

4.8 Education and Training Programs

It is imperative to allocate resources towards educational and training initiatives that center on climate research, data gathering and analysis, and policy formulation. African countries may effectively contribute to global climate efforts and make informed decisions by developing a trained workforce. To improve knowledge in domains connected to CC; this may entail setting up regional training facilities and scholarship programs (Ariom et al., 2022; Chirisa & Matamanda, 2022).

4.9 Foster Local Ownership and Community Engagement

The long-term viability of programs in African countries depends on encouraging local ownership of climate action (Ogunyiola et al., 2022; Kinyili, 2023; López-Rivera, 2023). The main goals of international assistance should be to involve local people, comprehend their needs, and integrate indigenous knowledge into climate initiatives.

4.10 Community-Based Adaptation Programs

Supporting community-based adaptation initiatives makes it possible to create specialized strategies that take into accounts the unique vulnerabilities and capabilities of the local populace. Initiatives aimed at promoting climate resilience are more effective and sustainable when communities are given the freedom to take the lead (Stewart, 2023).

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