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EDITORIAL: CLIMATE CHANGE AND LOCAL ECONOMIES

**By Oluibukun Gbenga Ajayi., Prince Dacosta Aboagye., Betty Olubunmi Adegebo
and Ayobami Abayomi Popoola**

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INTRODUCTION

Climate change confronts us with urgent questions about risk and responsibility at every scale. The Paris Agreement commits the global community to hold temperature rise well below 2°C above preindustrial levels and to pursue efforts to limit it to 1.5°C. To make these goals real for countries with fewer resources, Article 11 calls for capacity building so they can turn commitments into locally driven adaptation and mitigation actions. Article 12 goes further by calling for enhanced climate change education, training, public awareness, public participation, and public access to information. This special issue answers that call by bringing together research that informs policy makers, practitioners, and communities on the front lines of change.

The eight (8) articles contained in this volume explore how governance structures, planning interventions, mobility choices, housing design, environmental modelling, and material innovation can strengthen resilience and sustainability in diverse African contexts. Collectively, they show how research itself can serve as strategic environmental advocacy by revealing barriers, highlighting opportunities, and proposing practical pathways to action.

In the first article, Effectiveness of Multi Level Governance in Urban Climate Resilience Building in Zimbabwe, Kanda and Mhunga examine how interactions among local, regional and national actors shape the capacity of urban centres to withstand climate shocks. Drawing on thematic content analysis of policy documents and institutional reports sourced from academic and governmental repositories, they identify three main challenges: fragmented policy frameworks that inhibit coherent action; limited financial resources at subnational levels; and gaps in technical capacity. At the same time, they point to opportunities in participatory budgeting and the growing role of non-state actors in service delivery.

Also, the second paper, Towards Climate Resilience: Assessing the Impact of Community-Based Environmental Planning on the Wellbeing of Residents in the Slums of Osogbo, Nigeria, by Olanrewaju et al., investigates how grassroots planning initiatives can serve both climate adaptation and human wellbeing. They develop a Residents' Wellness Index that correlates strongly with the level of community participation in environmental clean-up, tree planting, and flood risk mapping projects. They propose a framework for scaling such initiatives with minimal external funding by maximising local social networks and informal governance structures.

The third contribution, Examining the Factors Impeding Cycling Utilisation among the Students of the Federal University of

Technology, Akure, Nigeria, by Olorunfemi, surveys three hundred fifty undergraduates to uncover the main barriers to adopting cycling as a low-carbon transport mode on campus. They report that the absence of cycling infrastructure comes first; inadequate road signage and poor road safety for cyclists follow; fear of accidents and the convenience of existing shuttle services rank third. The study uses weighted mean analysis to rank these factors and argues for the integration of cycling lanes into campus master plans.

Further, in the fourth article, *Effects of Climate Change on Host Communities: A Study of Selected Tourist Centres in Nigeria*, Gbadegesin applies Protection Motivation Theory to assess how environmental changes affect the social and economic dimensions of host communities around major attractions using United Nations tourism data from 1995 to 2022 alongside ten years of scholarly literature. The study concludes that community-based education and government-led interventions are essential to reduce vulnerability and to safeguard both livelihoods and natural resources.

The fifth paper, *Building Flood Resilience through Low Rise House Types*, by Nnaggenda Musana at Makerere University, explores how housing design can mitigate flood damage in Kampala's informal settlements. Through observations, interviews with experts, and systematic sketching in Bwaise Suburb III, the study finds that elevated plinths and raised living platforms offer only partial relief. It proposes new low-rise models that combine raised foundations with open ground floors for water flow and community gathering. The designs free up outdoor space for public use and prevent encroachment on wetlands.

In the sixth study, *Assessing the Impact of Soil Erosion Using Geospatial Approach in Minna Niger State Nigeria*, Zitta et al. employ Remote Sensing and Geographic Information Systems with the Revised Universal Soil Loss Equation to map soil loss across the Minna catchment. They classify losses as low under ten tonnes per hectare per year, moderate between ten and twenty tonnes, and high above twenty tonnes. Their soil vulnerability map offers a clear guide for targeting interventions such as reforestation, cover crops, and erosion control structures.

The seventh article, *Sustainable Alternatives: The Role of Natural Sponge Fibre in Enhancing Concrete Properties and Limiting the Impacts Associated with Climate Change*, by Kassum et al., tests untreated and sodium hydroxide-treated sponge fibre in mass concrete mixes at varying fibre weight fractions. Through four-point bending tests, axial compressive strength measurements, and scanning electron microscopy, they demonstrate that treated fibres create strain hardening after the first crack, improve durability and absorb more energy than plain concrete. Their findings suggest that sponge fibre reinforced concrete can serve as a low-cost, eco-friendly alternative to polymer and steel fibres, especially in regions with abundant sponge resources.

Finally, the eighth paper, *Reclaiming Agency in the Informal Economy: Navigating the Paradox of Economic Empowerment and Environmental Degradation in Artisanal Brickmaking in Rural KwaZulu Natal*, by Zondo, uses qualitative case study methods to probe the trade-offs of brick production. The study calls for training programs in cleaner kiln technologies, access to microfinance for upgrading equipment, and partnerships with local governments to formalise production in a way that preserves both livelihoods and the environment.

These eight articles innovatively move the discourse from global policy frameworks to on-the-ground practice: from governance and planning to material innovation and design. They illustrate how locally led research can inform climate action by identifying barriers, highlighting opportunities, and recommending strategies that engage all stakeholders. We thank our authors, reviewers, and editorial team for their hard work and dedication in making this collection possible. It is our hope that readers will find in these articles both insight and inspiration to cultivate and promote more resilient, inclusive, and sustainable communities.

Editor(s)

Oluibukun Gbenga Ajayi, Prince Dacosta Aboagye, Betty Olubunmi Adegebo and Ayaobami Abayomi Popoola

Oluibukun Gbenga Ajayi: Department of Land and Spatial Sciences, Namibia University of Science and Technology, Windhoek, Namibia.
Prince Dacosta Aboagye: Department of Civil and Environmental Engineering, Nagoya University, Japan.
Betty Olubunmi Adegebo: Department of Geography, University of Ibadan, Nigeria.
Ayaobami Abayomi Popoola: SARChI Chair for Inclusive Cities, University of KwaZulu-Natal, South Africa.