WASCAL West African Science Service Centre on Climate Change and Adapted Land Use

Federal Ministry of Education and Research

POLICY BRIEF

POLICY APPROACHES TO ADDRESSING CLIMATE-INDUCED MIGRATION IN TOGO

Yawo Konko*, Emmanuel Tanko Umaru, Pessièzoum Adjoussi, Appollonia Okhimamhe
***Correspondence: konkoyawo2@gmail.com; Tel +228 91 95 87 89**

EXECUTIVE SUMMARY

Global warming's widespread effects, such as ocean warming, glacier melting, and rising sea levels, pose significant challenges globally, particularly in coastal areas. In Togo, rising temperatures and sea levels have intensified coastal erosion, displacing populations and damaging infrastructure. Our study revealed notable trends, including a temperature increase of 0.038°C/year and sea level rise of 13.75 mm/year. Settlement dynamics have shifted, with coastal regions experiencing higher population densities. From 1988 to 2022, Togo's maritime region witnessed a substantial population increase from 1,042,385 to 3,534,991. These findings underscore the urgent need for informed decision-making and sustainable coastal management strategies to address the impacts of climate change on vulnerable coastal communities.

INTRODUCTION

Global warming-induced phenomena like ocean warming and rising sea levels exacerbate coastal erosion, endangering settlements and infrastructure (IPCC, 2014). Coastal regions face inundation and population displacement (Konko et al., 2023). Efforts to address these challenges in West Africa include the development of a coastal management master plan and initiatives like the West Africa Coastal Areas Management Programme (Word Bank, 2019). However, crucial indicators such as coastal climate trends and population dynamics remain inadequately studied in the region. This study, conducted in Togo's coastal areas, provides valuable insights into coastal climate trends and population dynamics, contributing to improved adaptation planning in West Africa.

RESEARCH APPROACH

The study utilized statistical methods such as the Mann-Kendall test and Sen's slope test to examine temporal trends in annual and monthly precipitation, temperature, wind speed, sunshine, and tidal gauge data for the period from 1988 to 2020. Additionally, coastal population dynamics were analyzed through settlement area mapping using the Object-Based Image Analysis (OBIA) method, offering valuable information on population migration in coastal regions.

RESEARCH FINDINGS

1. Findings highlighted significant trends in temperature and sea level rise, with temperature increasing at a rate of 0.038°C per year and tidal gauge data indicating a rise of 13.75 mm annually;

2. Although there were no significant annual trends for wind speed, precipitation, and sunshine, the analysis of monthly sunshine revealed significant trends in April and September;

3. Settlement areas exhibited changes from 2.06% to 11.85% between 1988 and 2020, characterized by densely populated coastal regions and dispersed patterns inland (see Figure 2 and Figure 3).

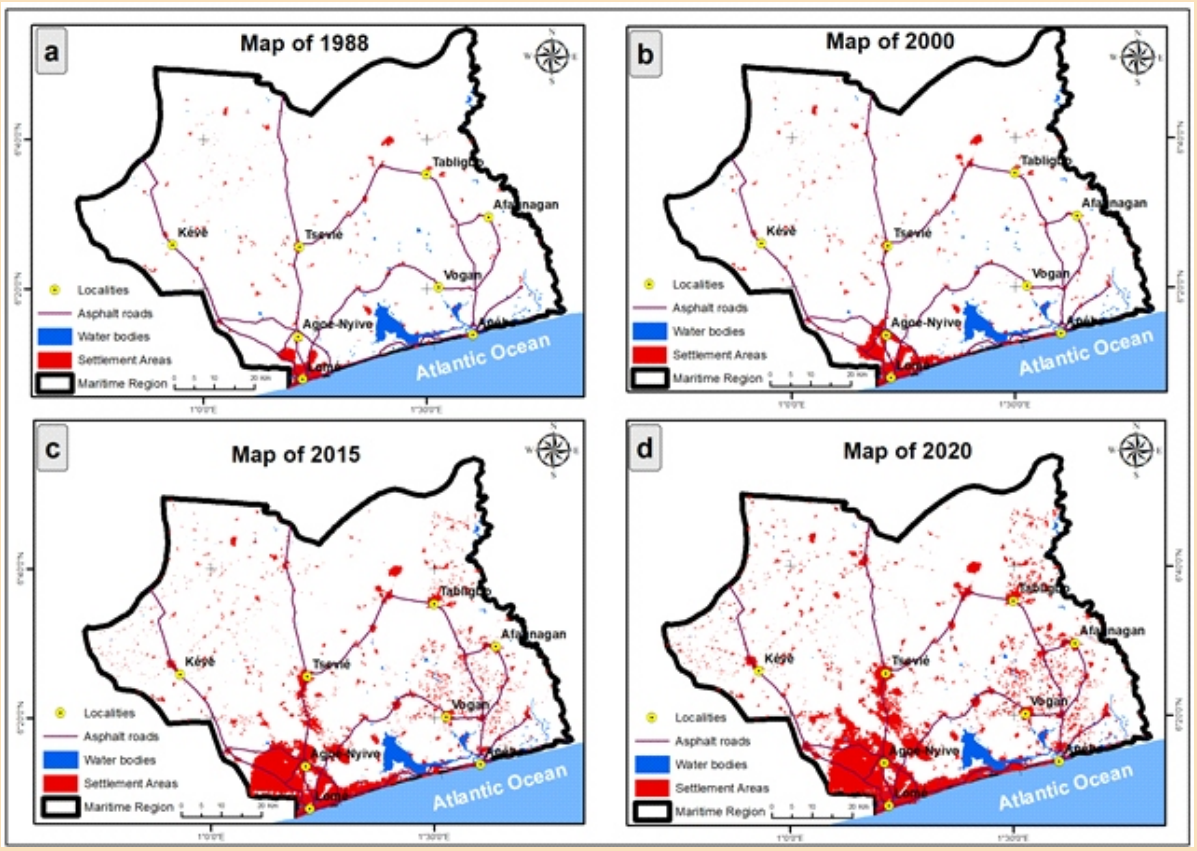

Figure 1: Spatio-temporal Trend of Settlement dynamics during the Period 1988-2020 as shown for the following years (a) 1988; (b) 2000; (c) 2015; (d) 2020

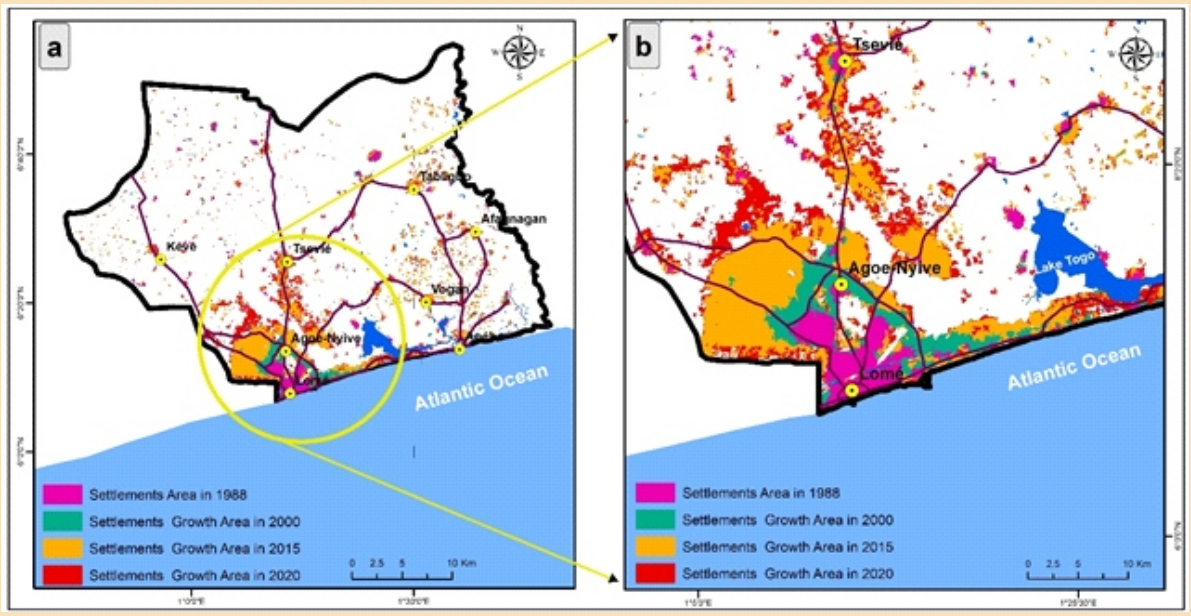

Figure 2: Spatio-temporal Dynamics of Settlements showing (a) Settlements Growth Area; (b) Dynamics of Settlement Area in the City of Lome and Surroundings.

IMPLICATION OF FINDINGS

The study delivers crucial decision-support tools essential for managing coastal human habitats in a changing climate. Its findings will play a vital role in shaping policy development, particularly in the formulation of adaptation strategies tailored to Togolese coastal communities. Various policy domains, including coastal planning, environmental management, water resources, urban development, and disaster preparedness, stand to benefit from the study's insights, fostering improved coastal management practices and resilience.

POLICY RECOMMENDATION

1. An overarching policy recommendation would be to establish a comprehensive Coastal Climate Risk Prevention Strategy (CCRPS) that integrates the findings of climate trend analysis into strategic planning and decision-making processes for coastal areas. This strategy should serve as a foundation for future climate studies in Togo and the broader West African coastal region;

2. Additionally, the policy should mandate the integration of coastal people distribution and dynamics into all aspects of coastal planning, design, and operations to facilitate adaptive management practices. By incorporating these recommendations, governments can effectively mitigate climate risks, enhance resilience, manage population displacement, enhance social protection mechanisms for affected communities, support livelihood diversification and ensure sustainable development in coastal regions;

3. **The Ministry of territorial administration, the ministry of urban planning, housing and land reform, the ministry of environment and forestry, the ministry of agriculture, livestock and rural development, the ministry of public works and transport, the regions, prefectures and municipalities in Togo can use the high-density centres identified in this study for economic development and diversification, including general trade, agriculture, tourism and fisheries.**

4. **The dynamics of coastal human populations can provide insights for the development of tools to manage the urban environment at the local level in the context of global warming. Spatial and dynamic distribution maps of dwellings can assist in planning sanitation and transport infrastructure, expanding telecommunications and electricity networks, and managing waste and the environment.**

1. IPCC (2014). Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectorial Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press.

2. Konko, Y., Umaru, E. T., Adjoussi, P., Okhimamhe, A., 2023. Climate change and coastal population dynamics in Togo (West Africa). Journal of Coastal Conservation, 27(5), 47. https://doi.org/10.1007/s11852-023-00977-5.

3. World Bank (2019) The Cost of Coastal Zone Degradation in West Africa,Washington. Https://openknowledge.worldbank.org/bitstream/handle/10986/31428/135269-Cost-of-Coastal-Degradation-in-West-Africa-March-2019.pdf?sequence=1

This work was supported by the German Federal Ministry of Education and Research (BMBF), the West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL) and the Federal University of Technology, Minna, Niger State, Nigeria.

For further information, please contact: Director of porgamme, WASCAL DRP CCHH, Federal University of Technology, PMB 65, Minna Niger Nigeria | +2348136448836 | wascal_cchh@futminna.edu.ng | wascal.futminna.edu.ng/

Designed & Prinited by: DVC Global Links® @ +2347036553040 | bolupeter@gmail.com