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## Climate change and sustainable housing in Ghana

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The characteristics of Ghanaian cities, typical of several others in Africa, are fast expanding and have inadequate capacity for solid waste management, good sanitation, clean water, housing and living spaces. The situation is compounded by increased frequency and intensity of weather events associated with climate change. This paper is aimed at examining the impacts of climate change on the housing environment in Ghana, and specifically addresses the following issues; how has the housing environment in Ghana experienced climate change? How can the housing environment in Ghana be physically planned to reduce their contribution to climate change? How can the housing environment in Ghana be planned and designed to adapt to climate change? Climatic data comprising temperature, humidity, rainfall spanning a thirty-year period representative of two regional capitals of Ghana is examined to establish their trends, and identify any linkages to the current housing environment. The cities are found to be vulnerable to multiple dimensions of climate change at rates higher than the global mean rates; in particular, increased temperature in the range of 0.035°C per annum manifesting in increased heat wave, reduced relative humidity levels at a rate of 0.23 per cent per annum, increased intensity of rainfall at a rate of 1.15mm per annum but of reduced frequency, and reduced wind speeds. The effects of the observed changes challenge city authorities in the management of the city. It is expected to sensitize discussion on adaptation strategies and influence physical planning policies and guide green building initiatives aimed at promoting sustainable, resilient and livable cities.

### Biography

Samuel Amos-Abanyie is a Senior Lecturer in the Department of Architecture in the College of Architecture and Planning at the Kwame Nkrumah University of Science and Technology (KNUST) in Ghana. He obtained his bachelor and postgraduate education in architecture from the KNUST in 1997 and 1999 respectively before moving to University of Flensburg in Germany, where he studied for a master degree in Energy Systems and Management in 2004. He then completed his PhD in 2012 in the area of passive cooling of buildings in the warm humid tropical conditions also from KNUST.

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