

## **The Challenges posed by Climate Change and Climate Variability to Economic Development in Ghana**

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Ghana's economy depends on many climate sensitive sectors with which agriculture and energy plays an over whelming role. Agriculture is the largest contributor to GDP (over 30%); the biggest source of employment, accounting for 55% of the labour force. Ghana's agriculture is already under stress as a result of population increase, migration and urbanisation, competition over resource use, soil degradation, and insufficient public spending for rural infrastructure and services and above all being rain dependant. The energy sector is also highly rain dependant. Hydro-electricity supplies the bulk of household and industrial energy needs. Evidence suggests that the climate of Ghana is changing with reductions in rainfall and increases in temperature in all five agro-ecological zones since the 1960s. A close examination of rainfall data however suggests that annual rainfall totals have begun to increase since 2000 and for the first time in twenty years, the Akosombo dam on the Volta River was spilt due to increases in rainfall. The overall objective of this study is to highlight the oscillatory nature of rainfall in Ghana and to demonstrate the likely impacts the return of declining rainfall will have on agriculture production and hydropower generation in Ghana. The study utilized data from both the Ghana Meteorological Agency (GMet) and the Global Historic Climate Network (GHCN) covering much of West Africa to demonstrate the regional extend of the declining rainfall pattern. Findings showed that the West African sub-region has generally experienced a period of declining rainfall starting in the early 1970s and punctuated by a series of severe droughts and marked by a shift in the rainfall regime. The danger Ghana's is likely to suffer is re-directing her economic development in the direction of climate sensitive sectors since analysis presented in this paper suggests that the drought that plagued Ghana in the past is not an anomaly and is likely to return in fifteen to twenty years time. It would therefore be prudent to increase Ghana's irrigation capacity which now stands below 5% of agricultural production. Again diverting Ghana's energy supply from hydro-power to include a mix of thermal and solar option will save the nation from economic slowdown that engulfed the economy in the late 1970s and early 1980 as a result of diminishing rainfall total.