

AN ASSESSMENT OF AIR POLLUTION AND ITS HEALTH IMPLICATIONS IN THE NIMA AND JAMES TOWN NEIGHBOURHOODS OF ACCRA

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ABSTRACT

This research on air quality was carried out in the twenty homes each in Nima and James Town respectively within the Accra Metropolis of Ghana from October 2006 to March 2007. Gravimetric measurements of particulate matter (PM₁₀ and PM_{2.5}) were measured by the use of Harvard impactors and pems whilst real-time monitoring was undertaken by interchangeable use of SidePak Personal Aerosol Monitors and TSI DustTrak Continuous Aerosol Monitors. Questionnaires were administered to a representative household member to obtain information on socio-economic status of the household, energy use and exposure and characteristics of the home. As much as 90% and 80% of homes in Nima and James Town respectively exceed the daily minimum of 70µg/m³ for PM₁₀ set by the Ghana EPA. PM_{2.5} concentration exceeded the daily guideline of 25 µg/m³ 24-hour mean set by the World Health Organisation. However, the birth weight of babies born in the studied homes was not adversely affected by the quality of air inhaled by the mothers in the communities. Congested traffic situations and large scale cooking as well as homes close to major roads in Nima and James Town were found experience high pollution to the increased readings of PM₁₀ and PM_{2.5} particulate obtained (370.8µg/m³ and 159.7 µg/m³ (PM₁₀ and PM_{2.5} respectively) levels of particulate matter irrespective of their lack of commercial cooking activities. The average CO concentration over 48 hours in James Town and Nima was 3.1ppm however the peak concentration in both neighbourhoods was 8.4ppm recorded in commercial cooking homes.

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