

THE USE OF REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEM (GIS) FOR MAPPING *ANOPHELES* MOSQUITO BREEDING SITES IN SELECTED COMMUNITIES IN ACCRA METROPOLITAN AREA (AMA)

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ABSTRACT

This particular study has the objective of using Geographic Information System (GIS) and Remote Sensing as tools to develop intensity maps of the breeding sites of *Anopheles* mosquitoes to provide information for effective control of malaria in AMA. Four communities (Kaneshie, Kokomlemle, Kotobabi and Alajo) were selected and mapped using GIS. Grid cells of 100m×100m were overlaid on these communities and 25 randomly selected grid cells were used as sampling frame for both entomological and socio-economic surveys in each community. An Ikonos satellite image having four (4) metre spatial resolution was used to segregate the ecotypes commonly associated with the breeding sites. A Magellan hand held Global Positioning System (GPS) was used to map the breeding sites. A survey of 396 households was used to assess inhabitants' knowledge on mosquitoes' breeding places. Results indicated that construction sites predominate with 52% in harboring water bodies that support the breeding of *Anopheles* mosquitoes. Culverts, drains and paved roads have 21%, Shallow areas liable to flooding constitutes 15%, Broken pipes had 6%, while Tyre tracks on rough roads and Urban agriculture sites constitute only 3% each of all sites positive with *Anopheles* larvae. Water quality assessments indicated that *Anopheles* mosquitoes preferred water bodies with high pH as breeding sites. Where *Anopheles* larvae were found had significantly higher pH (Mean difference of 0.525, $p=0.0432$). Ikonos image classification revealed that the breeding sites were predominantly (70%) associated with built up areas, an indication that *Anopheles* breeding sites in the study areas were highly manmade. Knowledge on the type of mosquitoes that cause malaria and where they breed is very low among the population of the study areas; with 88% of respondents mentioning other sources apart from water bodies as breeding places of malaria.

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