

(76)

**Mapping of Dengue High Risk Areas in Gangodawila PHI Area in the District of Colombo****Mendis B.A.N., Dayananda P.D., De Silva B.G.D.N.K.\****Center for Biotechnology, Department of Zoology, Faculty of Applied Sciences,  
University of Sri Jayewardenepura, Nugegoda, Sri Lanka**\*nissanka@sci.sjp.ac.lk***Abstract**

Dengue is known as the most common arboviral disease in the world. Sri Lanka has been affected by dengue epidemics for over two decades. In recent years over 50,000 dengue cases per year have been reported (55,150 in 2016 and 186,101 in 2017). The highest incidence is reported from Colombo district. Despite extensive vector control strategies carried out so far by health authorities a significant reduction in dengue prevalence has not been observed. Although monthly dengue incidences are considered in dengue epidemiological surveys, no proper mapping techniques are adopted for improved visualization of spatial case distribution. A study was initiated to examine the spatial distribution of confirmed dengue cases using Geographic Information System (GIS) in Gangodawila PHI area, Nugegoda MOH area, as one of dengue high incidence areas in the District of Colombo, Sri Lanka. Monthly dengue incidence was obtained from MOH office, Nugegoda from January to December 2017. The GIS locations of each dengue case were obtained and mapped using Arc Map 10.5 software. Inverse Distance Weighted (IDW) maps were created quarterly throughout the year 2017. Mapping dengue cases reflected the spatial heterogeneity in dengue case distribution throughout the year in Gangodawila PHI area. The case distribution from January to March represented a congestion of dengue cases in North-West and South-West areas covering the Gamsabha Junction (2.19% of total area). Case distribution from April to June revealed a case shift towards the South (Delkanda and Pangiriwatta) covering 1.56% of total area. A case shift towards North (Delkanda) was revealed from July to September covering a 1.73% of total area and a case shift towards South-East (Gangodawila) in later three months covering a 1.75% area of the total area was observed. The study revealed a case shifting pattern from dengue high incidence to low incidence areas throughout the year. Upon dengue prevalence, vector control measures are intensified only in dengue high transmission areas as a practice. Source reduction, adulticides and larvicides are routinely administered. Although elimination of adult and larval vectors are expected by chemical control, insecticide resistance development in vectors may have reduced the expected vector control. The study postulates that reasons for case shift over time might be attributed to escape behavioural tendencies to avoid unfavorable conditions and to invade new niches. The study highlights the importance of adopting effective spacial mapping tools for better dengue management.

**Keywords:** Dengue, Hot spot mapping, Shift, Gangodawila