

Spatial Pattern of Dengue Risk for Jaffna Municipal Area, Sri Lanka

S. Kannathasan^{1†}, K. Suthakar² and S.N. Surendran³

¹Department of Pathology, Faculty of Medicine, University of Jaffna, Jaffna

²Department of Geography, Faculty of Arts, University of Jaffna, Jaffna

³Department of Zoology, Faculty of Science, University of Jaffna, Jaffna, Sri Lanka

†selvammkannathasan@gmail.com

Abstract: There were many clinically diagnosed dengue cases reported during the post-war period in Jaffna district, especially in Jaffna municipal area. As there is no vaccine and specific treatment for dengue, vector control is the major measure adapted to control the disease transmission. Therefore, a study was designed to identify dengue risk areas in Jaffna Municipal area, in order to help the health authorities to prioritize their resources allocation to risk areas and to prevent the spread of the diseases further. Well known risk factors for the transmission of dengue fever such land use pattern, population density, house types, people gathering places and economic status were considered as main criteria to find out the Dengue prevailing. These criteria were combined using weighted overlay technique of the Geographic Information System (GIS). ILWIS 3.7 GIS software was used for Digital image processing, spatial analysis, and multi-criteria analysis. Definiens Professional 5.0 (eCognition) to Image segmentation and Classification. Based on the Dengue risk map, Grama Niladhari division namely Reclamation East (J/68) and Reclamation West (J/69) were identified as having high risk whereas, Eachchamoddai (J/66), Gurunagar East (J/70), Gurunagar West (J/71), Jaffna Town West (J/73), Vannarpannai (J/82) and Vannarpannai North West (J/99) have the risk for local transmission of dengue respectively. The identified risk areas highly match with the number of reported cases for dengue. While this map is expected to help health authorities to undertake vector surveillance and public awareness programmes, and extended map should be created for the whole Jaffna district.

Keywords: Dengue, Risk Map, Geographic Information System, Jaffna Municipal Area