A MEDICO GEOGRAPHICAL STUDY ON HUMAN ECOLOGICAL PROCESS AFFECTING THE SPATIAL DISTRIBUTION OF DENGUE EPIDEMIC; A CASE STUDY ON COLOMBO DISTRICT

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i. ABSTRACT

Dengue outbreaks all over the world creates a huge burden in developing countries in relation to their population, health systems and economies.The dengue virus was reported and serologically confirmed in Sri Lanka for the first time in 1962 and it was transmitted to humans by *Aedes aegypti* and *albopictus* mosquitoes. This situation in Sri Lanka changed by the end of 1980 when more than 200 Dengue Hermorrhagic Fever cases were reported around Greater Colombo Area. According to the Ministry of Health (2006), there was a sharp increase of dengue cases in Sri Lanka since 1990s with 656 cases in 1992 and 15,933 by 2005. Dengue Virus (DENV) 1 serotype was accounted for 7% of inspection but this has more effective in 2010 as it accounted for more than 95% dengue infection. Therefore, this serotype shift probably has contributed in some way to the induce massive dengue outbreak that occurred in 2010 onward partly due to manmade disease environment which was enjoyed by both *Ae. aegypti* and *Ae. albopictus* mosquitoes.

The objective of this study was to findout the relationship of the human ecological process and the related spatial distribution of dengue epidemic in Colombo District, Sri Lanka. Accordingly, identification of exact human ecological process which cause the spatial distribution of dengue epidemic is the main objective of this study while identifying the factors that affect and inter-relationship between human ecology and disease ecology for spatial distribution of dengue epidemic in Sri Lanka. The research methodology was quantitative and data were collected through a structured questionnaire as well as personal interviews.

Colombo district where there was the highest number of reported dengue cases in 2012, was selected as the study area. Within Dehiwala and Padukka Medical officer of Health (MOH) areas were selected as regional level case study areas as Dehiwela MOH area has the highest dengue cases in 2012, and Padukka MOH area has reported the least number of dengue cases during the same periods. The total population of dengue patients in three Public Health Inspector (PHI) areas in Dehiwela and five PHI areas in Padukka MOH area were 410 and 100 respectively. Out of these population 129 and 10 patients (age > 18) were ignored as they were not matured enough to participate in this type of research. Fifty percent of the remaining population was selected by using systemic sampling process for the study.

The outcome of the research was that human ecological processes such as awareness, employment, residence and living spaces, human behaviour, control measures and human mobility has direct relationship with occurrence of dengue. The most significant issue that was identified during the course of the study is that residence and living space and domestic human behaviour are the main causes for occurrence of dengue in high dengue risk areas and human mobility is the only process that transmits from high dengue risk areas to low dengue risk areas .

Key Words - Dengue, *Ae aegypti*, *Ae albopictus*, Human Ecological Process, Diseases Ecology.