

## **Study on Human Ecological Process Affecting the Spatial Distribution of Dengue Epidemic; a Case Study on Colombo District**

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### Abstract

Dengue epidemic that outbreaks in all over the world create a huge burden on those 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 *Aedes albopictus* mosquitoes. The situation in Sri Lanka was changed in the end of 1980 when more than 200 DHF cases reported around Greater Colombo Area.

The research problem for this study is the relationship of the human ecological processes and the related spatial distribution of dengue epidemic in Sri Lanka. Accordingly, identification of exact human ecological processes which caused 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 methods and data was collected through a structured questionnaire as well as interviews.

Colombo district where there was the highest number of reported dengue cases in 2012, was selected as the study area, Within the Dehiwala and Padukka MOH areas were selected as regional level case study area as Dehiwala MOH area has the highest dengue cases from 2010 to 2012 and Padukka MOH areas has the least number of dengue cases in the same periods.

The total population of dengue patients in three PHI areas in Dehiwala 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 are not matured enough to participated this type of research. Fifty percent of the remaining population was selected as the sample for the study.

The outcome of the research was that human ecological processes such as Awareness, Employment, Residencies and Living spaces, human behaviour, control measures and human Mobility has direct relationship with occurrence of dengue. Further the age and gender are also having relationship with the same. The most significant issue that was identified during the course of the study is that residencies and living space and domestic human behaviour are the main cause for occurrence of dengue in high dengue risk area and human mobility is the only process that transmits dengue to low dengue risk areas from high dengue area.

**Key Words:** *Aedes aegypti, Aedes albopictus, Human Ecological Process*

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