STUDY OF THE SPATIAL DISTRIBUTION OF AIR POLLUTION IN THE CITY OF COLOMBO, USING GIS AND RS

M.A.D. Samanmali

Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka

Environmental pollution is one of the major health problems in both industrialized and developing countries including Sri Lanka. The main categories are water pollution, air pollution, land pollution and noise pollution. Among these, air pollution is a severe and a growing problem worldwide, which highly affects the human health, specially those who live in urban centers. It is a dangerous and a silent hazard in comparison to other hazards since it is invisible. There are two types of air pollution, indoor air pollution and outdoor air pollution. Mainly indoor pollution increases with human domestic activities and outdoor air pollution is increasing with urbanization, industrialization and transport activities.

The usage of motor vehicles in the Colombo City has been increased by over 300% in the last 20 years. The majority of these are motor cycles and three wheels (Ileperuma, 2004) and also other vehicles such as public transports. In that case resent results show that the city of Colombo is heavily polluted and the level of air pollution has been reached its dangerous levels. During peak traffic hours (between 6:00 a.m. to 8:30 a.m. and 4:00 p.m. to 6:00 p.m.), Colombo area face to severe air pollution. Exposure to high level of air pollution can cause both short term and long term health effects; for example headache, decreased lung capacity and lung cancer. It was affects to the environmental visualization.

The Objective of this study was to evaluate the air pollution in Colombo city in Sri Lanka. Secondary data collected for a period of eight months (October 2012 to June 2013) and nitrogen dioxide (NO_2), sulfur dioxide (SO_2) was analyzed. ArcGIS 10 package was used to identify the spatial distribution of air pollutant. Inverse Distance Weighted (IDW) technique of Spatial Analysis tool, Zonal Statistics Analysis tool were used in ArcGIS 10 version and Grid regression analysis tool was in ArcView 3.2 used to data analysis.