

IDENTIFICATION OF CRITICAL AND SHRINKING AREAS IN COLOMBO BY MEANS OF SPATIAL AIR QUALITY MONITORING

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Abstract

More and improved geographic coverage of air quality data is needed to facilitate better management of air quality. However, there can be serious local technical and other problems in obtaining and ensuring reliable data. These include training and service, power supply variability, lack of foreign exchange for equipment, consumable and replacement parts for essential equipment etc. In these circumstances, state-of-the-art automatic equipment may not be the best means of obtaining reliable monitoring data in long term. Therefore, it is recognised that the choice of air quality monitoring methodologies needs to suit local circumstances. In recent years, relatively simple and inexpensive passive methods were developed by NBRO as an alternative to the more demanding automatic monitoring systems to develop air quality monitoring networks.

Results of 15-location passive air quality network in Colombo are discussed in this paper, and it shows that the temporal variation of weekly and monthly exposure levels of SO₂ and NO₂ is related to seasonal climatic conditions. However, the maximum is recorded in North-East monsoon and minimum is at South-West monsoon. Change of air quality levels at Boralla Police Station and Thilakarathanaramaya, Boralla, which are right opposite to each other, clearly shows the climate effect. Spatial variation shows that during most time of the year, the maximum levels were recorded at Maradana Junction, a high traffic congested area. Relatively low values were recorded at Gangaramaya, Nawam Mawatha, which is close to water body and can be considered as a shrinking area. Levels of air pollution were found to decrease when going away from urban areas especially at high elevated areas.