PRELIMINARY ASSESSMENT OF AMBIENT AIR QUALITY IN COLOMBO CITY

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Atmospheric pollution is caused by both stationary (industries, powerplants etc.) and mobile (vehicles) sources. The common air pollutants are particulate matter, SO_2, oxides of nitrogen, carbon monoxide, CFS'c (of recent origin), etc. These pollutants in excess affect human habitat, animal life and flora and fauna. Therefore regular monitoring is necessary to assess ambient levels so as to plan, control and mitigatory measures.

In Sri Lanka, very limited monitoring of ambient air quality has been conducted so far. The authors in this paper will discuss a low-cost monitoring programme currently underway in the city of Colombo. For this study, the National Building Research Organisation Scientists devised a multifunctional sampling unit to measure dust level and sulphation rate. The latter gives indication of the level of present concentration of sulphur compounds in the atmosphere. While the former is estimated in two ways (i) using dust fall jars, and (ii) employing sticky paper horizontaly and vertically to the ground. The sticky paper method determines the effective area coverage (EAC) and has been used previously in the U.K.
A total of 52 sampling units have been installed, each covering an area-140 ha and a population of 13,000.

At the conclusion of the study the following will be available;

(i) Areas of high concentration of sulphur compounds which will enable to identify locations for future measurement of sulphur dioxide.
(ii) Dust level in the atmosphere at various points in the city.
(iii) Correlation between the dust fall and EAC. So that EAC could be considered as a reliable alternative to dust fall. EAC measurements are much cheaper and less time consuming than dustfall measurements.
(iv) Effectiveness of the multi-functional sampling unit, and it's possible use in other urban areas.

References: 1. Department of Scientific and Industrial Research (1954); The Investigation of Atmospheric Pollution. Fuel Research Station, London, UK.
2. British standard 1747;1951;Deposit Gauges for Atmospheric Pollution, British Standards

3. World Health Organisation (1972); Air Quality Criteria and Guides for Urban Air Pollutants.
4. Indian Standard IS;5182 (Part VIII) 1976; Sulphaton Rate. Indian Standard Institute.
5. Indian Standard IS;5182 (Part I) 1969; Dust fall. Indian Standard Institute.
6. American National Standard 2116.1(1970); Collection and Analysis of Dustfall. American National Standards Institute.