Abstract Of
Mr. M. Naeem Abbasi
PhD scholar, DPAM

The aim of the study was to determine the heavy elemental pollutants in the form of dust suspended in air along the major highways and roads in the capital territory of Pakistan. The various heavy elements found in the dust collected from the Air conditioner filters were Cd, Cr, Cu, Ni, Pb and Zn. The purpose of collecting dust samples was to evaluate the level of pollution by each of the pollutant. The concentration of the elements including the maximum, minimum and mean value along each major highway was measured with the help of Atomic Absorption Spectrometer. The statistical analysis of the measured values in the three sites, i.e. Islamabad Urban, Islamabad Rural and the Rawalpindi City, was carried out for the contamination and pollution load index. The mean pollution load index (PLI) for Islamabad Urban, Islamabad Rural and the Rawalpindi City was 2.78, 2.51 and 2.86 respectively. The measured values were also compared with some reference values and data available from different parts of the world.

The concentration values measured for various roads in each site indicate that the Murree road has the greatest pollution load index. The pollution levels and health risk assessments carried out for Murree Road showed the level of toxicity impact on the public by the release of heavy metal pollutants. The carcinogenic and non-carcinogenic effects were calculated for the child as well as adult members of the society.

As far as the study of measurement and assessment of pollution is important in the highly populated areas, the study of dispersion of pollutants is equally important too. Dispersion not only transports the pollutants from one place to the other but also dilutes the pollutants in the atmosphere thus minimizing the concentration of the pollution. In order to study the pollution dispersion and the impact of meteorological parameters on the dispersion of pollution, the wind speed profiles were modeled using a new methodology. We treated the meteorological

parameter, surface roughness length, as a variable instead of a constant, which is a general practice. Modeling the wind profile using this new technique resulted in better outcome. The new method is applied to both the urban and rural area. This study was also extended to various stability conditions in the atmospheric environment and it gave good results compared to the ones obtained by conventional means.

The phenomenon of turbulence has a key role in mixing up of the pollutants in the atmospheric environment. In this regard particle's lateral dispersion in a turbulent flow has been depicted. It was found that the lateral dispersion of the heavy particles is a function of their density and particle size. The dispersion varies inversely with the density as well as the particle size of the heavy particles.