Air Quality Assessment at Sindh Industrial Trading Estate of Karachi, Pakistan

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Rapidly increasing population, factories, processing industries, motor vehicles, burning of municipal waste, and other sources of emission of hazardous gases are adversely affecting the quality of air. Air quality is generally the widespread and obvious kind of environmental damage. The loss of biodiversity threat of climatic changes, rise in sea-level and depletion of stratospheric ozone layer are all the results of indiscriminate industrial activity and uncontrolled pollution. The pollutants are being discharged into the atmosphere from a number of sources but vehicular traffic and industries are the major contributors. Industrialization introduces uncontrolled pollution into the atmosphere and is a threat to human environment.

Karachi is located at longitude 67° East, latitude 25° North on the coast of Arabian Sea. It is the biggest industrial city of Pakistan and nerve center of business commerce and industry of the country. The people migrated from the upcountry due to abundant employment and business opportunity in the city. It has a well defined industrial base. There are more than 20,000 small and large industrial units working in various industrial estate of Karachi such as Sindh Industrial Trading Estate (SITE), Landhi Industrial Trading Estate (LITE), Korangi Industrial Area (KIA) and Federal B Area Industrial Zone.

The SITE is one of the oldest and largest industrial estates in Pakistan. The SITE was established in 1953 and is located at latitude 24°54” and longitude 67°10” in the South district. It has a total area of 4,400 acres and nearly 2,000 different types of industries are located in this area. Approximately 60% of these industries are textile mills while others involve pharmaceuticals, chemicals, detergents iron and steel, Sulphur refining, vegetable oil, beverages and food products. A study on the measurement of the concentration of major ambient air pollutants was carried out at Sindh Industrial Trading Estate of Karachi city. Three sampling stations are selected in this trading estate. Stations I and II are located in the direction of S-W of SITE whereas station III is located in the direction of S-E of SITE.

The data at these three stations of SITE has been collected for SO$_2$, CO, NO and NOx along with the meteorological parameters. The data generated has also been evaluated for Time Weighted Average (TWA) values. The results suggest that all the pollutants were mainly due to the emissions from industries, refineries, power generation plants and also from motor vehicles. Due to the absence of regulatory laws/standards about ambient air quality in Pakistan, the results have been discussed with reference to the ambient air quality limits recommended by the World Health Organization.