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Department: **Civil and Environmental Engineering**

Project Title: **Source Apportionment Study of Particulate Matter of Jamshedpur City.**

Funding Agency: **Jharkhand State Pollution Control Board**

Sanction Amount: Rs. **7985125**

Fund Utilised.: 0

Tenure: **3 Years**

Abstract:

Deteriorating air quality globally has attracted the attention of scientists worldwide to find solutions for its management. The Central Pollution Control Board (CPCB), India, has included particulate matter (PM_{10} and $PM_{2.5}$) as one of the major pollutants for monitoring air quality, as it is harmful to human health and the environment. The National Clean Air Programme (NCAP), launched by the Ministry of Environment, Forest and Climate Change (MoEFCC), aims to improve air quality in more than 100 cities across India. Jamshedpur is classified as a million-plus city under NCAP and included under this scheme by the Government of India and BIT Mesra has been provided funds by JSPCB to carry out source apportionment of particulate matter. PM concentration varies region-wise and season-wise depending upon the natural and anthropogenic sources of emission. Carbonaceous aerosols and inorganic ions are often the prime constituents of fine and coarse PM mass. Metals, metalloids, and sea salts are also contributors to the PM mass, depending on the region. Regional chemical characterisation of aerosols for elements, inorganic ions, elemental carbon and organic carbon (EC/OC), and organic compounds such as hydrocarbons, PAHs, and VOCs helps identify the nature of pollutants and their sources in the environment. The major objectives of the work are to determine the mass and chemical characteristics of PM_{10} and $PM_{2.5}$ using ground-based measurements and PM source apportionment using different models. Chemical characterisation of PM will help to elucidate air pollutant emission sources. The study will help with decision-making to achieve the target of reducing particulate matter concentration in Jamshedpur city.