

Meta-Analysis of Particulate Matter Production in Developing and Developed Countries

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Abstract : Industrial development and urbanization have significant impacts on air emissions, and their relationship diverges at different stages of economic progress. The revolution further propelled these activities as principal paths to economic and social transformation; nevertheless, the paths also promoted environmental degradation. Resultantly, both developed and developing countries undergone through fast-paced development; in which developed countries implemented legislation towards environmental pollution control however developing countries took the advantage of technology without caring about the environment. In this study, meta-analysis is performed on production of particulate matter (i.e., PM₁₀ and PM_{2.5}) from urbanized cities of first, second and third world countries to assess the air quality. The cities were selected based on ranked set principles. In case of PM₁₀, third world countries showed highest PM level (~95% confidence interval of 0.74-1.86) followed by second world countries but with managed situation. Besides, first, world countries indicated the lowest pollution (~95% confidence interval of 0.12-0.2). Similarly, highest level of PM_{2.5} was produced by third world countries followed by the second and first world countries. Hereby, level of PM_{2.5} was not significantly different for both second and third world countries; however, first world countries showed minimum PM load. Finally, the study revealed different that levels of pollution status exist among different countries; whereas developed countries also devised better strategies towards pollution control while developing countries are least caring about their environmental resources. It is suggested that although industrialization and urbanization are directly involved with interference in natural elements, however, production of nature appears to be more societal rather hermetical.

Keywords : meta-analysis, particulate matter, developing countries, urbanization

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